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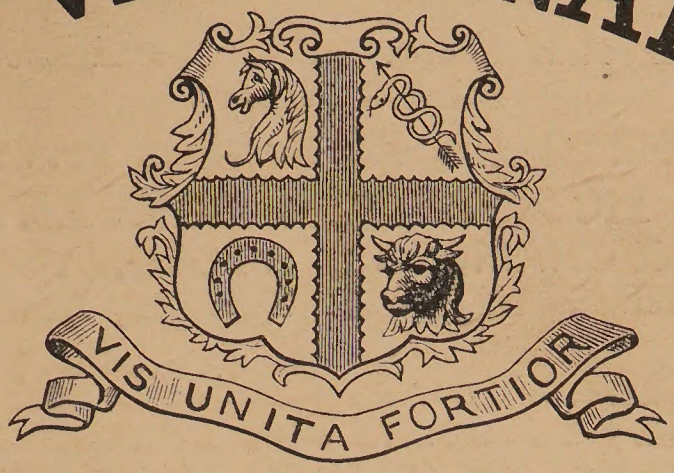

A MONTHLY JOURNAL OF VETERINARY SCIENCE.

MARCH, 1895.

EDITED BY

PROFESSORS AITKEN, DEWAR, AND METTAM.

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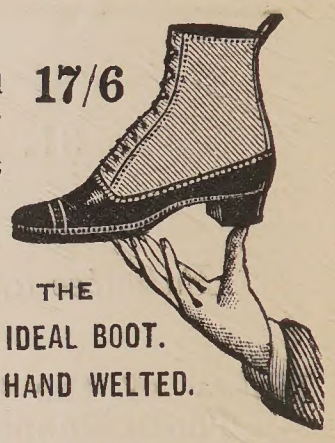

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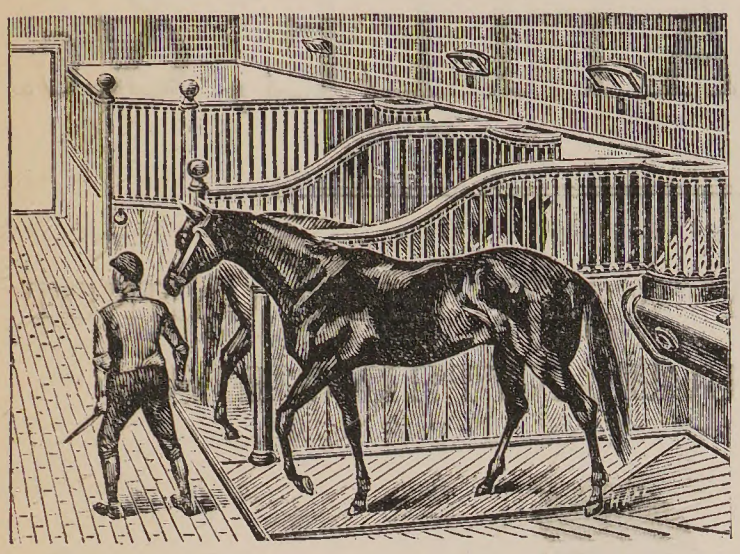

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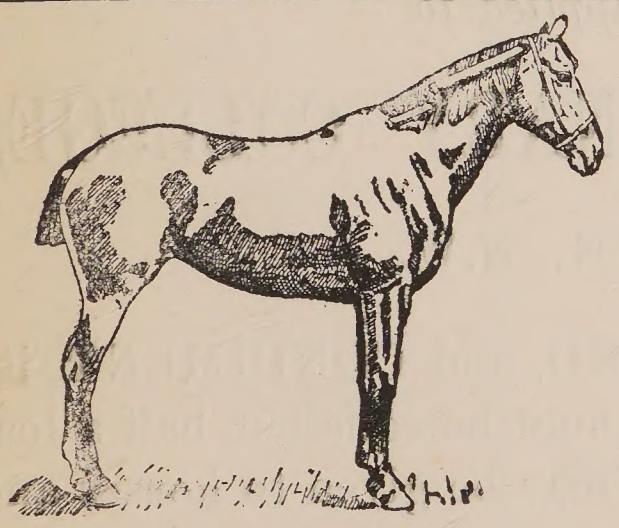

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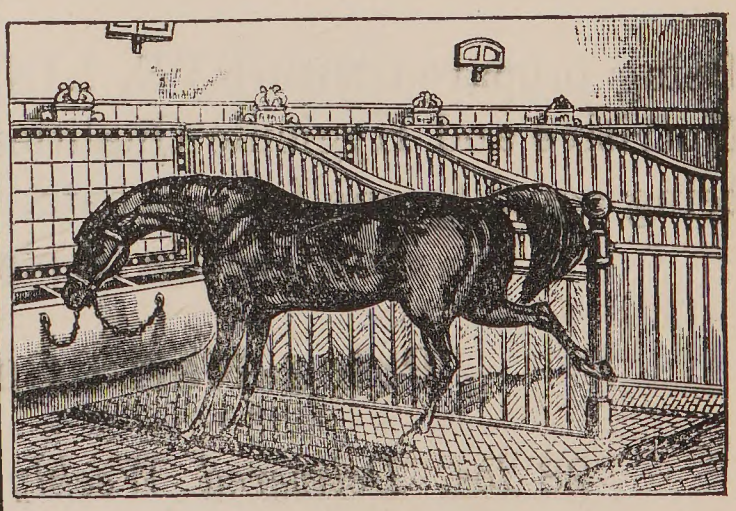

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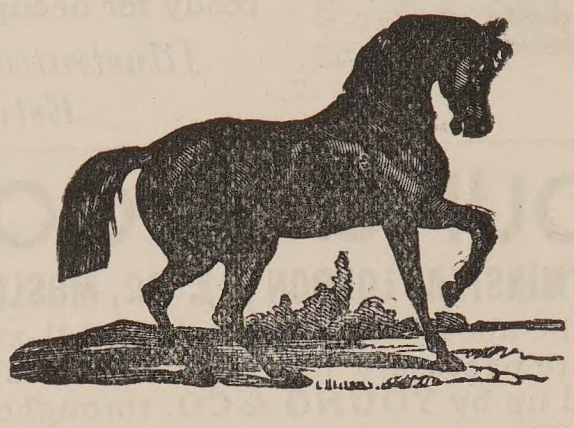

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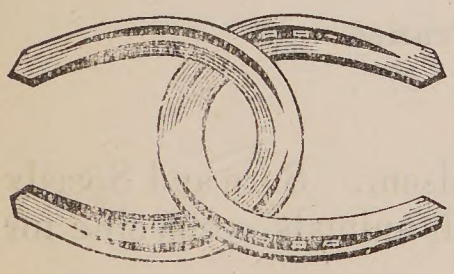

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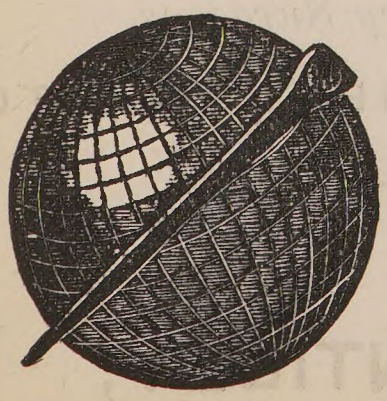

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VOL. LXVIII. No. 807. | MARCH, 1895. | Fourth Series, No. 483.

Communications and Cases.

ON THE LESIONS OF THE SUSPENSORY APPARATUS OF THE FETLOCK OF THE HORSE.

By M. J. Sendrail, Clinical Assistant.

Everyone recognises the admirable structure of the horse's foot. By some ingenious device nature has united in this region two conditions, necessarily equal and necessarily opposite—rigidity and elasticity.

As a result of too active exertion, or a repetition of such, or of violent reaction, it often happens that the resistant force is overcome, and the limit of elasticity exceeded. Lesions are thus brought about, more or less grave, in one or other of the organs constituting the fibrous support of the fetlock, it may be in several of them at one time.

It has been admitted for a long time, and it is even now generally understood, that these lesions have their seat in the least extrusible of the tissues, on the flexor tendons of the foot or upon their strengthening bands.

The function we assign to the flexor tendons, seconded by the radial, carpal, or tarsal check bands, in the support of the fetlock, seems to exclude the possibility of a strain of the suspensory ligament of the fetlock. This last structure does not offer a great resistance to the lessening of the metacarpo- or metatarso-phalangeal angle; it yields and is accordingly stretched. But, if it is true that the

* *Revue Vétérinaire*, January, 1895.

fibrous support upon which the fetlock rests may often be strained, the lengthening allowed to the suspensory ligament should be extremely limited. This structure may become the seat of numerous accidents, as fatigue, strains, ruptures, &c., accidents that occur often to the locomotory apparatus, and consequently when the efforts of locomotion have overcome the resistance offered by the tendons.

Lesions of the suspensory ligament of the fetlock, then, should be rare, and should always be secondary and as a result of lesions of the flexor tendons or their reinforcing bands.

Prudhomme,* who was the first to point out the various functions of the different structures found behind the cannon bone, does not refer to the possible lesions of the suspensory ligament.

H. Bouley† defended Prudhomme's theory, took it as his own, and expounded it with his usual skill in his *Traité de l'organisation du pied du cheval.* Later on, he still maintained that "sometimes the determining cause of the alteration of the fetlock has its seat in the texture of the suspensory ligament of the fetlock; but this is exceptional, because the very pronounced elasticity of this ligament allows it to yield to an enormous extent to the effects of traction, and thus rupture is out of question."

This theory is seductive, founded upon the facts of anatomy and physiology, but is insufficient because, as we shall see later on, it does not serve to explain all the observed pathological phenomena.

Nevertheless, thanks to the great authority of H. Bouley and to the robust faith generally placed in all his works; thanks to an erroneous interpretation of clinical facts, and to a want of precision in diagnosing the exact seat of the lesion, it has been necessary in these later days to enter first a protest against current ideas, and to demonstrate their falsity and insufficiency. It is to Siedamgrotzky (*Einiges über Sehnenerkrankungen der Pferde*),‡ in Germany, and almost at the same moment to Barrier, of Alfort, in France, we owe the first attack upon this tottering classical house of cards.

Barrier's § communication to the Société Centrale de

* "Mémoire sur la ténotomie addressé à la Société vétérinaire de la Seine" (*Recueil de Méd. Vét.*, 1845).

† *Dictionnaire de Méd. de Chir. et d'Hyg. Vétér.*, article "Bouleture," tome ii.

‡ In *Archiv f. wissens. und prakt. Thierh.*, 1st March, 1891.

§ *Bulletin de la Soc. Centr. de Méd. Véter.*, March 26th, 1891.

Médecine Vétérinaire, on "The Pathological Anatomy, the Seat and Mechanism of Over-reach," has not had, perhaps, all the consideration it deserved. Veterinarians have not given him the result of their observations, although the statistics first given foretold many; moreover he has met, even in the Central Society, opponents, among whom, the not least distinguished, M. Trasbot* thus expresses himself:—"He (Barrier) again remarks that the classical theory cannot explain how rupture of the suspensory ligament of the fetlock can occur while the check ligament yet remains intact: but is it possible that this isolated lesion can occur? For my own part I am sceptical. One thing is certain, that all practitioners have been as one in noticing that alterations of this ligament are extremely rare compared with the number seen in the subcarpal check ligament. . . .

"I cannot even now understand how this ligament can rupture and the tendons remain intact.

"I wait to see such a condition before I can believe it possible."

Examples, required by the eminent Alfort professor, exist. I propose to put one on record; it is very curious, perhaps unique; it was observed in the clinique of Professor Mauri.

The patient was a brown bay Dutch mare, ten years old, nearly 15·3 hands, a splendid brute, full of mettle, and had often performed with credit on the racecourse.

On November 4th last the owner lent her to a friend for a ride. After she had gone several kilomètres, the rider noticed her slacken her paces, become heavy in hand, and, in a very short time, absolutely refuse to move. Very much put out at so sudden a change, he came immediately to the school for two pupils, who, recognising the gravity of the case, brought the subject into hospital. M. Mauri saw the mare on her arrival in the clinical department. She walked with the greatest difficulty; at each step the fore fetlock came to the ground; the foot rocked upon the heel, and the toe tilted upwards; the metacarpo-phalangeal angle was flexed, and less than 90°. M. Mauri diagnosed a rupture of the supporting structures of the fetlock. Inasmuch as the lower part of the limit up to the superior third of the cannon bone was the seat of a considerable swelling, the point of solution of continuity could not be precisely determined. The patient had high fever, and refused all food.

* Ibid.

Owing to such an alarming train of symptoms the prognosis was highly unfavourable, and immediate slaughter was recommended. The affected limb was brought to us, and after a careful dissection showed the following conditions:

The subcutaneous fascia from the coronet to fifteen centimètres above the fetlock was infiltrated with blood, which had even passed through the skin over a great area and had produced the doughy feeling already noticed.

The skin covering the metacarpo-phalangeal articulation was the seat of ecchymoses; one spot had a diameter of a five-franc piece, just where the fetlock came to the ground. The flexores pedis (perforans and perforatus) and their reinforcing bands, stained red like all the other tissues in this region by the blood that bathed them, were quite sound, and numerous incisions made into their structure did not show any alteration from the normal. After the removal of the tendons we at length discovered the lesion. It was a complete rupture of the inferior and lateral sesamoidean ligaments at the point of insertion into the sesamoid bones, and when the ligaments gave way they brought off the superficial compact layer of the bones themselves.

At the bottom of the incision the two inferior convex surfaces of the sesamoids were found; it (the incision) was covered by a blood-clot, and when this was removed we could feel small detached fragments of bone. The suspensory ligament of the fetlock was intact. If by a slight downward movement a depression of the fetlock was produced, the sesamoids moved by the suspensory ligament passed beyond the level of the metacarpal articulation. It remains to say that all the other articulations were absolutely sound and free from disease.

A lesion such as this surely points to a considerable strain during locomotion—to a violent accident. But the person in charge of the animal affirms that he saw nothing. Naturally we thought of the possible existence of a prior affection of the sesamoids themselves, but after a minute examination we have discarded this hypothesis. The cause of the rupture is unexplained, and it must be inferred that the account was too biassed (we said the mare had been lent) to be sincere. Rupture of the inferior sesamoidean ligaments has not, I believe, been observed. Siedamgrotzky only notices inflammatory changes in these structures. But this lesion need not surprise us, because the inferior sesamoidean ligaments assist, along with the

sesamoids and the suspensory ligament, to form one of the supports of the fetlock to prevent over-extension of the pastern joint. This support may give way at the point where elastic fibres are absent.

Saint Cyr* has put on record a remarkable case of rupture of the suspensory ligament of the fetlock, a short distance below the point of bifurcation, which happened to a horse which had gone down under its load, as a result of breaking of the axle-tree of the cart to which it was yoked. The flexor tendons were perfectly sound.

M. Jacoulet† asserts also that he has seen complete and isolated rupture of the suspensory ligament of the fore fetlock of cavalry horses, hunters, and racehorses, but he had no opportunity to make post-mortem examinations. He further assures us that this injury is possible in the hind limbs as well. M. Comény‡ noticed, in a saddle mare that he had cast, the terminal branches of the suspensory ligament ruptured in both fore-limbs. The tendons and their reinforcing bands showed no lesion.

If one is permitted to offer an opinion from the small number of cases recorded in veterinary bibliography, uncomplicated rupture of the suspensory ligament of the fetlock is very rare. But is strain of this structure, in other words laceration, rupture of some of its fibres and consequent inflammation as rare ? Until quite recently it was permissible to believe this lesion an exceptional one, because it was too often confounded with strain of the tendons when the injury had its seat in the body of the ligament, with strain of the fetlock when the terminal branches were affected.

Nevertheless, M. Mauri has often drawn our attention to accidents of this character and to the existence of objective symptoms which will allow an exact diagnosis, because the strain has its seat either in the middle part of the suspensory ligament, or more frequently in the terminal branches or in one of these alone.

When M. Barrier had proved the possibility of uncomplicated lesions of the superior sesamoidean ligament, the question arose what is the proportion of these lesions to those affecting other organs of the suspensory apparatus. Published statistics prove that strains of the suspensory ligament are much more frequent, and the proportion is

* *Journal de Méd. Vétér. de l'École de Lyon*, 1854.
† *Bulletin de la Soc. Centrale de Méd. Vétér.*, July, 1891.
‡ Ibid., January, 1892.

greater by 50 per cent. M. Barrier* found the lesion in five out of twelve horses examined.

In eighteen cases of strain of the tendinous and ligamentous metacarpal region treated by M. Jacoulet,† thirteen showed the suspensory ligament affected.

In 230 observations of over-reach, M. Poy‡ found the suspensory ligament alone affected 116 times. Fortunately this very common lesion is, as compared with other forms of over-reach, less grave.

It is easily treated, and generally the patient recovers its full power and fitness for work. During last November I saw a fine Dutch mare very lame, and she had been so for nearly a year, from inflammation of the branches of the suspensory ligament of the off fore fetlock. The lameness entirely disappeared fifteen days after the application of the hot iron (pyropuncture) along the lateral borders of the tendon and fetlock. Be that as it may, it has been proved to demonstration that uncomplicated rupture of the suspensory ligament of the fetlock can occur, and that in a great number of cases of strains of the tendinous apparatus of the limbs of horses, the majority have their seat exclusively in this ligament. But this is quite inexplicable if one keeps to the theory defended by H. Bouley. A hiatus remains therefore to be filled up, and a reform of ideas held even at present required.

Messrs. Barrier and Siedamgrotzky have tendered the requisite information. They have explained in a very ingenious fashion the mechanism of the lesions of the organs constituting the suspensory apparatus of the fetlock. Let us remark at once that the new theory consists essentially in a new conception of the phalangeal lever. H. Bouley, following the example of Bracy Clark, considered the phalangeal lever as a rigid rod stretching from the fetlock to the extremity of the hoof. Already Messrs. Neumann§ and Pader|| have proved that at certain stages during progression the third phalanx and the hoof take no share in the phalangeal lever, and that this should be considered as a beam interposed between the cannon bone and the third phalanx.

* *Bulletin de la Soc. Centrale*, April, 1891.

† Ibid., July, 1891.

‡ M. Delperier, *Rapport à la Soc. Cent.*, March, 1892.

§ "Du tirage du cheval considéré au point de vue de la mécanique animale." *Recueil de Mém. et observ. sur l'hyg. et la med. vétér. militaires*, 1876.

|| "Mémoire addressé à la Soc. centrale pour le concours de 1888 et Précis théorique et pratique de Maréchalerie."

An examination of a series of instantaneous photographs of the horse in motion (Marey and Anschütz) has shown to Messrs. Siedamgrotzky and Barrier that the function of the fetlock and phalangeal articulations is not what is usually understood, when closely observed. These photographs, indeed, show that at the moment the foot comes to the ground, the cannon bone, the pastern, and the hoof are all in a straight line. Immediately weight is put on, two angles are formed, one at the point of the metacarpo-phalangeal articulation, open in front; the other at the point of the second interphalangeal articulation, open behind. This last, about which H. Bonley did not bother himself, offers the key to the interpretation of the phenomena which take place at the level of the fetlock. It "acts consequently by shortening the distance which separates the semilunar crest from the sesamoidean pulley. There then evidently occurs a slackening of the perforating tendon, which has not diminished in length, and this allows the sesamoids to slide downwards upon the cord which no longer binds them so tightly together. So that the more marked this flexion, the greater the descent of the fetlock, the more ought the suspensory ligament to yield to the locomotor tractions, and but for that the obscure elasticity of the check band must intervene."

The perforatus, obtaining no advantage from the angle of the second interphalangeal articulation, is not nearly so relaxed as the perforans: but it benefits from a very slight degree of movement of flexion which is produced at the point of the first interphalangeal articulation, and it does not support so directly as the suspensory ligament of the fetlock the pressure tractions of which the metacarpo-phalangeal articulation is the seat. If, as often happens in cases of periostitis of the coronary articulation, the angle can no longer be produced at this point, the perforans cannot relax, receives almost all the strain and transmits it to its reinforcing band. In the second phase of *l'appui* the pastern becomes straight again, the angle of the hoof opens, is obliterated, and there is produced even an obtuse angle directed forwards (Neumann). The angle of the fetlock remains closed or even more strongly flexed. The perforans is at this moment stretched to the extreme, and its reinforcing band could not withstand an extra strain. Such is then, very briefly, the theory of Messrs. Barrier and Siedamgrotzky.

A theory can only be accepted when it has received

confirmation from practical experience. This has been supported already by numerious clinical observations. It is to be hoped that all those who are interested in such extremely useful questions as animal mechanism, will make known facts in their possession.

THE PRESENT POSITION OF THE QUESTION OF IMMUNITY.

By Jno. A. W. Dollar, M.R.C.V.S., London.

(*Continued from page* 90.)

During the last two years the attention of bacteriologists has been pointedly drawn to cholera and to the phagocytic phenomena occurring in the peritonitis of animals caused by Koch's vibrio. In his first work in which he proved the real existence of the disease, Herr R. Pfeiffer went solely on the theory of the bactericidal properties of the body fluids. He thought that the vibrios were first killed by the bactericidal power of the liquid exudate. He therefore denied absolutely any active part to the phogocytes. In his second work, published in common with Herr Wassermann, he is convinced of the action of the leucocytes in destroying the vibrios in refractory guinea-pigs, but he thinks the microbes were not taken up until after they had been destroyed by some agency outside the cells whose nature is not yet determined. With the object of throwing light on that question, M. Issaeff undertook an investigation in Herr Pfeiffer's laboratory, and under his direction. He became convinced of the great extent and importance of the phagocytic reaction in choleraic peritonitis in guinea-pigs. The remarkable power of resistance produced by injecting a little bouillon, a small quantity of tuberculin, or of many other substances, is believed by M. Issaeff to depend on stimulation of the phagocytes, which take up the vibrios, and thus relieve the organism of these poison-producers. Herr R. Pfeiffer has accepted this view. It will be seen then that he now attributes a considerable influence to the phagocytes, but he distinguishes between a temporary protection due to the injection of bouillon and other substances, and a true protection produced by vaccination with the vibrio or its toxic products. In the first case the *leucocytes* are supposed to save the individual, whilst in true immunity the

destruction of the vibrios is due to other causes. In his last work on this subject which has just appeared, Herr Pfeiffer lays stress on the bactericidal action of the peritoneal exudate in guinea-pigs which have been hypervaccinated against the cholera vibrio. He has discovered the following facts. He injects cholera vibrios into the peritoneal cavity of hypervaccinated guinea-pigs, and withdraws a little of the peritoneal fluid in from ten to twenty minutes afterwards. This fluid contains very few leucocytes, but a quantity of vibrios which have lost their power of movement and are transformed into little spherical bodies. Just as these globules diminish in number, the leucocytes increase. The same facts have been observed by Herr Pfeiffer, who injected into the peritoneum of normal guinea-pigs a certain quantity of cholera culture mixed with bouillon and blood serum from hypervaccinated guinea-pigs.

Reasoning on these facts, which have been carefully noted and frequently repeated, Herr Pfeiffer enunciated the following conception of immunity. Immediately after the injection of choleraic vibrios into the peritoneum of hypervaccinated guinea-pigs, the living cells (probably the endothelial cells) secrete a fluid which kills the organisms and dissolves them in a short time. The leucocytes only appear late in the day, and play quite a secondary part. Herr Pfeiffer comes to the conclusion that "for choleraic peritonitis in guinea-pigs the theory of phagocytosis must be looked upon as entirely mistaken" (p. 4).

Before proceeding to criticise Herr Pfeiffer's deductions, it should be pointed out that his conception of immunity must be included amongst cellular theories similar to those analysed above. The vibrios are no longer destroyed by the blood plasma as such (as Herr Pfeiffer previously considered), but by a fluid secreted by the cells in consequence of the irritation produced by microbic invasion. Herr Pfeiffer does not seem to question that his present views on immunity are exactly similar to those which Emmerich gave forth in 1887. There is no need to renew a discussion on the subject of that theory, as it is now abandoned. Let us see up to what point it is supported by the special case of choleraic peritonitis in guinea-pigs.

In his researches Metschnikoff employed both animals which he had himself vaccinated and also serum from hypervaccinated animals kindly supplied by Herr Pfeiffer. As could easily be foreseen, the facts, observed by so conscientious and able a worker as Pfeiffer, have been

absolutely confirmed. The vibrios, injected into the peritoneum of hypervaccinated animals and withdrawn at the end of a few minutes, have been found transformed into small immovable globules. The number of these becomes less on each occasion of withdrawal, whilst that of the leucocytes becomes greater. But this peritoneal fluid preserved in the form of drop culture always gives abundant results when resown. Direct observation shows beyond question that the greater number of these globules become transformed under such circumstances into immobile vibrios, and often into spirillum forms. But the globules have never been seen to be dissolved by the peritoneal fluids. This agrees with the fact that the choleraic vibrios remain alive for hours in the peritoneum of guinea-pigs hypervaccinated against cholera.

Inovraclaw's choleraic vibrios act in the same way. When a drop of culture is mixed with 1 c.c. of bouillon and 2 c.c. of serum from a hypervaccinated guinea-pig and injected into a fresh guinea-pig, the vibrios are found in a short time as spherical bodies in the fluid withdrawn. But this does not prevent such fluid from furnishing good cultures, even when the fluid was withdrawn seven hours after the injection, and had become crammed with leucocytes. By carefully following Pfeiffer's directions, Metschnikoff found that choleraic vibrios, when injected into fresh guinea-pigs along with protective serum, or into hypervaccinated guinea-pigs, remain alive for several hours. The peritoneal fluid, in which only a few vibrios are found even when these are enclosed in leucocytes, still gives abundant cultures.

The plasma in the exudate is therefore shown to be incapable of killing the microbes.

This transformation of vibrios into immobile globules ought, however, to be examined. Herr Pfeiffer thinks the leucocytes play no part in this process because they are still too scarce in the peritoneal exudate. The action must therefore be attributed, he says, to a secretion of the endothelial cells. In making these statements Metschnikoff's opponent loses sight of the fact that in the guinea-pig the peritoneal cavity contains lymph which is very rich in leucocytes. It is true that if one only withdraws a small drop it may seem to be poor in white corpuscles, but by taking a larger quantity it is easy to convince oneself that they are really abundant. When the reaction consequent on injecting the vibrios is further advanced it may happen that a drop of the fluid seems poor in leucocytes, but on

making a *post-mortem* one finds false membranes covering the liver and mesentery which consist of enormous quantities of phagocytes.

Direct observation also proves that the leucocytes in the peritoneal lymph must always play a part in the transformation of vibrios into globules. If one removes a little peritoneal fluid, even five minutes after injecting the vibrios mixed with the serum prepared by Herr Pfeiffer, one is struck by the following phenomena :—The leucocytes appear surrounded by a covering of vibrios, for the most part already transformed into globules; whilst the polynucleated and mononucleated leucocytes and even the eosin leucocytes are covered with a thick mass of microbes, the lymphocytes and red corpuscles are perfectly free, and are not surrounded by any microbes.

This fact, which has often been confirmed, shows the existence of a chimotactic action between the leucocytes named and the choleraic vibrios. These cells therefore attract the microbes. To get to them the vibrios must have been freely swimming in the lymph, but it is only in the neighbourhood of the leucocytes that they have lost their mobility. The action of these cells on the vibrios is therefore beyond question. By watching the phenomenon for a longer time one finally sees a transparent zone between the layer of vibrios and the surface of the leucocytes. There is therefore some production of fluid going on around the white cells. Is this a case of real secretion? Such a question is of course difficult to answer, because all the leucocytes that one finds under these conditions are completely immobile, and therefore seem dead. To determine whether this death of the leucocytes takes place within the animal body or only at the moment of extraction from the peritoneum requires a special research.

The facts observed by Herr R. Pfeiffer may therefore be interpreted as follows : the phagocytes in vaccinated guinea-pigs elaborate substances capable of destroying the vibrios.

In the condition termed hypervaccination these substances become so abundant that they easily escape from the phagocytes. A somewhat similar thing happens here to what is noted in digestion. In the lower animals digestion is entirely intracellular, but with the advance in evolution it first becomes mixed, partly intracellular and partly extracellular. Theoretically speaking, one might perhaps induce all the phagocytes and perhaps all the other cells to excrete their bacteria-destroying products, and thus trans-

form the intra-cellular destruction into an extra-cellular destruction. Only in reality we are still far from that point; and even in the special case studied by Herr Pfeiffer the bacteria-killing action of the plasma is, as we have seen, only moderate. Metschnikoff particularly emphasises this fact, which he has noted a great number of times, viz. that when the liquid only contains microbes which have been taken up by phagocytes it gives pure cultures. In drop cultures this fluid presents a certain phenemenon which Metschnikoff has described, and which has lately been confirmed by M. Cantacuzène. The leucocytes which are now dead become dilated and transformed into sacs full of vibrios. These latter end by invading the entire drop. This fact shows that the microbes were living when absorbed, and that all the extracellular influences were insufficient to kill every bacterium. Metschnikoff insists on this fact as being the principal objection to Herr R. Pfeiffer's later views, and to all the other humoral or humero-cellular theories, and amongst others to M. Buchner's last theory, mentioned in the beginning of this review.

The numerous researches made during the last few years, the widespread existence of phagocytosis as a means of destroying microbes, and the further part played by the phagocytes in taking up solid bodies, has been clearly established. The great sensibility of the leucocytes towards the soluble products of microbes leads one to suggest that the phagocytes act on toxins.

M. Chatenay has made a study of the leucocytic reaction in animals poisoned by bacterial toxins like diphtherin and tetanin, by vegetable toxins like ricin and abrin, and animal toxins like snake poison. The results greatly resembled bacterial infection. When death resulted in a short time the number of leucocytes diminished, but when the animal survived more than twenty-four hours or resisted altogether, the number of leucocytes rose more or less above normal. M. Metschnikoff studied this production of leucocytes in rabbits poisoned with arsenious acid, and also found that the leucocytes diminished in fatal cases. But in animals accustomed to arsenic the same doses which diminished the number and produced death in the control animals here resulted in a considerable increase in the number of leucocytes. These results prove on the one hand that poisons produce a leucocytic action, and on the other that a diminution in the number of leucocytes can be produced not only by proteins but also by other poisons.

In this connection one ought to mention the very interesting facts collected by the school of M. Kobert, at Dorpat. After introducing into the system of various animals a very soluble preparation of iron (Horneman's Saccharate of oxide of iron; Ferrum oxydatum saccharatum solubile) which does not precipitate in alkaline solutions, M. Kobert and his pupils Stender, Samoiloff, Lipsky, and others followed the circulation of the metal in the tissues. They found that a small quantity of iron is excreted by the kidneys and intestine, but that the greater part of the metal is arrested in the organs, especially in the liver, the spleen, and the marrow of bone. The iron is absorbed by leucocytes, which retain it for a long time and finally discharge it into the intestine, towards which they pass driven by a power at present unknown. Metschnikoff has studied this circulation of iron in the bodies of several varieties of vertebrates. Sometime after its introduction into the body by the blood-vessels, by the peritoneal cavity or the subcutaneous tissue, the iron can be detected by a solution of ferrocyanide of potassium accumulated in the various forms of phagocytes, and especially in the leucocytes, the endothelial cells of the liver, and the spleen pulp cells. The non-phagocytic cells like Erlich's simple leucocytes which are so abundant in the lymph in rats, only take up a very little iron, whilst the polynuclear leucocytes and the large mononuclear ones are full of it. MM. Charrin and Carnot have discovered quite recently that lead accumulates more readily in injured organs, but they do not think it is carried by the leucocytes because the pus gives no lead reaction. It is probable this contradiction is only apparent and not real. The dead pus cells are unable to absorb the metal, but there are probably other phagocytes, perhaps the endothelial cells of the injured parts, which effect resorption. In all these cases the experiments on the circulation of iron, which have been extended by M. Samoiloff of the Dorpat school to the soluble salts of silver, show the important part which the phagocytes play in the absorption and carriage of metals. These experiments are sufficient to justify us in attributing great importance to these cells as therapeutic centres of the body. The leucocytic phenomena in cases of poisoning by organic toxins, and in the inurement of the organism to arsenic, support this conclusion. The fact that the prevention and treatment of disease by serums is due to stimulation of the resisting powers of the cells shows once more the vast importance in the phenomena of cure and of immunity, of

the functions discharged by the cells in general, and the phagocytes in particular. We have nearly arrived at the end of our examination, and must allow the superiority of the cellular theory of immunity and the weakness of the purely humoral theories.

It may safely be concluded that immunity to infectious diseases is due to the living cells of the body, and that amongst these cells the principal function must certainly be attributed to the phagocytes.

Metschnikoff's Conclusions regarding Immunity.

1. The exponents of the humoral theories of immunity have modified their views in attributing the work of destroying bacteria to products of the leucocytes; and in allowing that these cells travel in consequence of their sensibility towards the points invaded by the microbes Herr Buchner is approaching the cellular theory of immunity.

2. In suggesting that immunity is due to fluids secreted by the endothelial cells under the action of microbes, Herr R. Pfeiffer revives Emmerich's abandoned theory and modifies his previous purely humoral views in the direction of the cellular theory.

3. In allowing that in addition to passive immunity which is attributable to the bodily fluids, there exists an active and durable immunity due to a function of the cells, Behring comes over to the side of the supporters of cellular theories.

4. But passive immunity produced by protective serum or by other substances like bouillon, tuberculin, &c., is found to be due to stimulation of the cells. It therefore becomes more and more probable that even the anti-toxic action of the body fluids depends not on the destruction of toxins but on the stimulation of the cells.

5. The theory according to which the bacteria are destroyed by the secretions of the eosin leucocytes is contradicted by a more careful examination of the facts.

6. The theory of phagocytosis is in harmony with all the facts established since its inception.

7. The examples which have been adduced as exceptions to the phagocytic function—mouse septicæmia, diphtheria, anthrax in crustaceans and molluscs—also accord with the theory of phagocytosis on more careful examination.

8. Choleraic peritonitis in guinea-pigs is one of the

infectious diseases in which the bactericidal action of the phagocytes is best marked. The fact that the vibrios degenerate in the peritoneal fluid of hypervaccinated guinea-pigs as described by Herr R. Pfeiffer is due to the action of the products of leucocytes modified by the influence of hypervaccination.

9. Microbes can be destroyed within the phagocytes even though their interior be acid, thus confirming the opinion of M. A. Kossel concerning the action of the nuclear acids. But this destruction also goes on in an alkaline medium in the interior of the phagocytes.

10. The phagocytes act not only in invasions by microbes but also in intoxications produced by various poisons. The part they play in relation to inorganic substances has also been demonstrated principally by M. Kobert and his pupils.

11. After reviewing the advances made during the last few years, immunity must be looked on as the result of cellular activity.

12. Of all the cells responsible for producing immunity, the phagocytes are the most important.

[With the exception of some pages of introduction the above paper is substantially that read by M. Metschnikoff at the Congress of Hygiene and Demography at Budapest, and published in the October number of the *Annales de l'Institut Pasteur*, though, for the sake of rendering it better fitted to my audience, I purposely omitted certain less important passages.—J. A. W. Dollar.]

NOTES ON THE STERILISING OF FLESH IN THE BERLIN FREIBANK.

By A. M. Trotter, M.R.C.V.S., Edinburgh.

A question which at present is disturbing to a very large extent the equanimity of the sanitary world—the question of whether or not tuberculous flesh is fit for human consumption—has been in a great measure solved on the Continent. A visit to the abattoirs of Berlin more than convinces one of the great strides they have made in the direction of the solution of the problem. There many scientists have experimented and done much good work, but the one we would draw your special attention to at present is the successful experiment and its practical issue by the eminent scientist, Dr. Hertwig. He in 1890

introduced into the Freibank of the Berlin abattoirs an apparatus for the sterilisation of meat invented by Rohrbeck, of that city.

It consists of a horizontal double-walled iron cylinder, 2·62 metres long, and 1·68 metres in diameter. At each end is an iron door giving access to the inner compartment, and which can be hermetically closed by means of screws. This inner compartment is fitted up with movable iron gratings arranged in five tiers for the reception of the flesh. Under each grating is placed a pan with a slight inclination to one end so that all the drippings which have oozed from the meat above gravitate to this end, where they are allowed to flow into a large collecting pan placed for that purpose on the floor of the cylinder. The apparatus is constructed to withstand the tension of one atmosphere, but as a rule only half of that pressure is employed. The steam gains admittance at the upper surface, and by a valvular arrangement can be caused to circulate in the space between the outer and inner walls. In this manner the space for receiving the material operated upon can be converted into a drying chamber or oven; on the other hand it may be caused to enter this compartment direct. As the former arrangement is considered unnecessary in the sterilisation of flesh, the latter is the one adopted by the Freibank authorities. An arrangement by which the steam within the apparatus may be condensed at pleasure forms a notable and important feature; this condensation is brought about by means of cold water. As a result of this condensation a vacuum is created which assists materially in the process of cooking—facilitating the penetration of steam into the tissues of the flesh. The degree of this negative pressure is indicated by a manometer placed outside the cylinder. The steam gains access to the exhaust pipe through several openings in the floor of each compartment.

The experiments, which were conducted under the direction of Dr. Hertwig, created at the time considerable interest, so much so that, besides many medical and veterinary experts, one or two Ministers of State attended in person and witnessed the trials. The series of experiments, which were of a prolonged nature, are so full of interest and instruction that I cannot do better than give a short account of them. As small organs and portions were not deemed of sufficient size and quantity to afford reliable proofs, the side of an ox and several cwts. of lungs, livers, &c., were reserved for each experiment.

The organs as a rule were not incised, except when considerably enlarged by pathological processes. The flesh was cut up into pieces varying in weight from 3 to 6 kilos. The larger portions of these were provided with a maximum thermometer which had been previously tested, so that a record of the highest temperature reached in the centre of that portion could be ascertained. A few of the largest portions, on the other hand, were furnished with what is known as a contact thermometer. This is an instrument so arranged that when the temperature has reached 100° C., the fact is announced by an electric signal bell, placed outside the apparatus, being set in motion, the two being connected by wires passing through the walls of the apparatus. The precise moment that this temperature was reached in each individual piece provided with this instrument could thus be ascertained and recorded; a tested registering thermometer was also suspended in the compartment. By means of these thermometers a most interesting record has been obtained regarding the penetration of heat into flesh. By a perusal of the annexed table, it will be noted that flesh from all parts of the animal was experimented upon, and it will be found that lean meat is the most difficult of all to cook thoroughly. These facts are of great interest to the British public, because it is well known that the carcases of many animals that during life were affected even to an extreme degree with tuberculosis are sold for human consumption. In some parts of the country this is openly done, the butcher not even taking the trouble of "stripping" the carcass. What renders this the more grave is the above demonstration that heat takes a much longer time to penetrate a lean piece of meat. Many of such carcases are emaciated, so that one may safely say that all such flesh cooked in the ordinary way is much underdone. It cannot, therefore, but be a great source of danger to the consumer; and when this scourge is making such fearful ravages in the human race, it will be but wise to prevent such (when possible) from passing into the market. Such a carcass, however, may be with all safety used when sterilised by the above method. This will be acknowledged when it is stated that Dr. Wernicke, at the request of Professor Koch, attended one of these trials in order to make some bacteriological investigations with steamed tuberculous flesh, but abandoned his project as useless after seeing the result. Inoculation of guinea-pigs was had recourse to in order to demonstrate the harmlessness or otherwise of

No. of Experiments.	Duration of Experiments.	Joints of Meat.	Quality.	Size.	Weight.	Signal 100° C. after.	Maximum Thermometer hung up in Apparatus.	Maximum Thermomter in centre of Meat.	Loss in Weight.	Soup gained.
	hrs. mins.			Cm.	Kilo.	hrs. mins.	° C.	° C.	Kilo.	Kilo.
1	2 15	Joint for Roasting	Lean	15	3·00	—	117	104	1·125	—
	„	Sirloin	Fat	15	2·750	—	„	102½	1·125	—
	„	„	Streaky	12	3·250	—	„	110	1·250	—
	„	Shoulder	do.	12	3·250	—	„	106	1·250	—
2	2 15	Shoulder	do.	15	4·750	—	117¼	109½	1·500	—
	„	Ribs of Beef	Fat	—	3·250	—	„	107	1·250	—
	„	Shoulder	Streaky	12	5·00	—	„	113½	1·500	—
	„	do.	do.	12	5·00	2 9	—	—	1·500	—
3	2 26	Joint for Roasting	Lean	15	5·500	2 10	118	110	2·250	—
	„	do.	do.	15	3·250	2 13	„	110	1·250	—
4	2 12	do.	Streaky	15	2·750	—	118	104	1·375	—
	„	Rump of Beef	do.	12	2·500	1 52	„	—	1·250	—
	„	Joint for Roasting	do.	15	3·750	2 0	„	—	1·500	—
	„	do.	do.	12	2·625	1 33	„	—	1·250	—
	„	do.	do.	15	4·125	—	„	108	2·00	—
5	2 0	Meat without bone		10 × 11 × 15	1·625	2 0	Not quoted	100	0·750	—
6	2 30	do.		11 × 13 × 20	3·00	2 25	115	101	1·375	—
7	2 45	do.		15 × 15 × 15	3·250	2 35	118	103	1·250	1·250
8	3 0	do.		12 × 12 × 15	2·750	2 35	118	105	1·250	1·300
	„	do.		10 × 15 × 15	2·500	2 35	„	104½	1·00	—

tubercular material subjected to the action of this steriliser. Those inoculated with this were found on autopsy to be without a trace of any tubercular lesion, but others inoculated with the uncooked material were found to be tubercular in a high degree. There can be no doubt but that the efforts of the Freibank authorities have been crowned with success, not only in demonstrating to the scientific world that flesh from animals affected with tuberculosis in different degrees can be with safety allowed (after being subjected to the concentrated action of steam for some time) to pass into the market for human consumption, but also in gaining the confidence of the poorer members of the community that such may safely be used. The most scrupulous care and cleanliness is observed in the handling of this flesh, so that even the most fastidious amongst us could find no fault. On its being removed from the apparatus one could not but be struck at its juicy and pleasant appearance, the odour was delicious, and in taste much superior to boiled meat; the soup also was excellent.

The cooked meat is sold in quantities not exceeding 5 lbs. This is a restriction imposed by the authorities to prevent retailers buying and selling it for what it is not. It is sold at a very moderate price, according to the quality of the article. Each purchaser of flesh can be supplied, free of charge, with a quantity of soup. Anyone visiting the Freibank will be surprised at the large number of people waiting to be served. They come from long distances; some, indeed, I was assured, came from villages five miles off. Another notable thing about the crowd was their cleanliness and orderliness; many of them had been patiently waiting for the time of distribution for two or three hours. It was a curious and striking scene, old and young, with his or her pitcher or pail, awaiting their turn with the sedate bearing so typical of the inhabitants of Germany.

THE VETERINARIAN, MARCH 1, 1895.

THE RECENT MEETING OF THE COUNCIL.

In this issue we give a report of the meeting of the Council of the Royal College of Veterinary Surgeons, held on January 23rd last, and in that report we desire especially to direct the attention of our readers to the paragraph headed "The Examination Committee." This committee came to certain conclusions which it brought to the notice of the body of the Council. These conclusions are as follows:—"(1) That the Council approve of 40 per cent. as the minimum of marks for a pass; (2) that students who were rejected in the examinations in December last shall not in future examinations be required to undergo an examination in zoology." This second clause on a division was rejected by the Council.

It would be interesting to know on what grounds the committee came to the conclusions it did, and on what grounds the Council decided to upset the recommendations of its own committee. Most members of Council must know that many men were rejected at the Christmas examination in Class A, and among them students who entered the schools under the three years system. It will be superfluous to further point out to them that many of the students who were unfortunate are four years students, who hitherto have prepared for the examinations in vogue up to Christmas. At Christmas the old Board expired, and the new one has not yet been produced, though the premonitory labour pains are apparent; and when this new Board comes into existence, as far as it relates to Class A, it will be on the new lines and up to date. By new lines and up to date we mean it will be the section that will examine the students on the lines laid down in the new scheme of the four years curriculum. Its duties will be to examine in Junior Anatomy, Chemistry, Botany, and Zoology, the last two subjects being included under the term Biology; in other words, the subjects are similar to those of the three years system *plus* Zoology. Students who entered the schools at the commencement of the present session know full well that Zoology is a subject they must overtake by May, but it is different with the men who prepared for the examination before Zoology was included. They were not expected to know anything of that subject,

and consequently applied themselves to the three sciences they had to take. Now, according to the latest resolution of the Council, they must take this extra subject, and they are informed of the fact, by means of the periodicals, four months after the commencement of the session. They are expected to get up a subject like Zoology during the remainder of the session, and at the same time make themselves proficient in subjects they have already found difficult.

It is much to be regretted that the well-intentioned clause of the committee's report should be negatived, more especially as the students affected include some who were already in the veterinary colleges when the schemes were passed. To protect such students the following foot-note was appended to a printed sheet giving the details of the four examinations, and which is headed "Four Years Scheme of Professional Education." This sheet was issued by the Royal College of Veterinary Surgeons, and lies before us as we write. The foot-note reads, "*No student at College, when this scheme is sanctioned by the Council, to be in any way affected by it, and an interval of three years to be allowed between the passing of the scheme and its coming into force.*" The scheme was passed on July 21st, 1892. The next examination is fixed for May 13th, 1895.

ABORTION.

The publication of an interim report of the committee appointed by the Royal Agricultural Society to investigate the subject of Abortion has not as yet done much to advance our knowledge of the pathology of that affection. That was scarcely to be expected at this stage of the inquiry, and should not disappoint those who interested themselves in getting it started.

Unfortunately, some seem to have jumped to the conclusion that the object of the investigation had already been attained, and that carbolic acid given in the food is an infallible remedy for arresting the disease. Were that the case, it would be a great point gained—an important advance, but not all that can be wished. As prevention is better than cure, it is very desirable that the cause should be ascertained, so that there might be a possibility of averting the malady. Meantime, as was stated by one of the principal scientific witnesses before the committee, "in nineteen cases out of twenty the cause is unknown." That

this is an extreme percentage is possible, but how seldom can any cause be traced except where it seems to originate in some case of sporadic abortion due to accidental or obvious causes! It is almost universally acknowledged that nothing happens without a cause, and when no satisfactory cause can be found, anything that is obnoxious or offensive to the particular observer is liable to be blamed. But it was scarcely to be expected that any of those called ostensibly as skilled witnesses to give evidence before this committee should still ascribe to *sympathy* outbreaks of enzootic abortion.

"A fellow-feeling makes us wondrous kind," and cows also, it may be; but at the end of the nineteenth century we cannot believe that an affection having all the characteristics of a contagious disease is due to a compassionate imagination, a subtle indefinable psychological cause. Time was when the causes of disease were looked for in east winds, a sudden fall in the barometer, or some ill-defined thermometric or telluric influence. But in this scientific age the committee will be expected to find some real demonstrable cause that can be accepted without trenching far on the realm of faith. It is possible, however, that the knowledge of the subject may be added to without this being obtained, but from the nature of the affection it must necessarily take a considerable time if the inquiry is to be worth anything. It is well also to accept with a prudent reserve the statement that carbolic acid may be relied on to arrest this destructive pest. "One swallow does not make a summer," and instances will have to be multiplied before any great reliance can be placed on it. There was nothing remarkable in the fact that the plague of abortion was arrested while carbolic acid was being administered. It may be merely a coincidence.

How often after a couple of seasons, or in the majority of cases at least in three, does the malady disappear as mysteriously as it came, without any special means being used! It is to be hoped, however, that carbolic acid may have some effect in controlling the disease. It is a powerful antizymotic, although its antizymotic action in the system is believed to be slight compared to what it is outside. But other agents may be found to have a more powerful antizymotic effect. Carbolic acid is no new remedy for abortion. It was recommended by Zundel, a German veterinary surgeon, twenty years ago, and for seventeen years it has appeared

as such in the standard text-book on obstetrics. It was not only given internally, but injected subcutaneously, so that a specific effect in arresting the disease need scarcely be looked for. It is to be hoped that the labours of the committee will be continued, that they will have some measure of success, and that they may advance our knowledge of the ætiology and pathology of this obscure and destructive affection.

Reviews.

Topographische Anatomie des Pferdes. By Drs. W. Ellenberger and H. Baum. Second Part: Head and Neck. Berlin: Paul Parey, 10, Hedemannstrasse, S.W. 360 pp., 67 illustrations; price 18 marks.

No words of ours can increase the respect with which every student of anatomy will receive the above book. Few other works on the anatomy of the horse will bear comparison with, certainly none surpass it, and it cannot fail to become a classic for all German-speaking veterinarians. The first part, dealing with the limbs, has already attained a wide celebrity; and this, the second in series, preserves the same characteristics of painstaking observation and lucid description.

Both in dealing with the head and neck the authors have adopted the excellent system of supplementing their dissection diagrams by illustrations of transverse sections. Nothing could be more useful to the student who is struggling to grasp the correct relations of the various anatomical structures. We believe that the same system was carried out by Professor McFadyean some years ago, and can only regret that that well-known anatomist has not yet given to the world the lessons so learned. May we venture to suggest the value of such diagrams could they be incorporated in the 'Anatomy of the Horse'? Eight of these transverse sections, the first made just in front of the false nostril and the last just behind the supra-orbital foramen, serve to convey a conception of the arrangement of structures which could be imparted in no other way. They are supplemented by longitudinal sections, and by some beautiful preparations intended to show the position and extent of the facial sinuses and the direction and relations of the molar and incisor teeth.

The eye and ear are well described (the middle ear

especially), and the brain seems to have received special attention, twenty-five pages, as well as some seven illustrations, being devoted to it.

The description of the neck is as careful and painstaking as that of the head, and is figured in the same way. The whole work is well printed on good paper in the very best style, and we feel sure that every earnest student of anatomy who has mastered the elementary difficulties of the German tongue cannot do better than buy it.

Zootecnia. By Prof. Giuseppe Tampelini. 290 pp., 52 illustrations. Price 2 lire 50 c. Published by Ulrico Hoepli, Milan.

This small work is the latest of a series of manuals dealing with "The Horse," "Veterinary Hygiene," and "Cattle." Being intended for the use of stock breeders, veterinary and agricultural students, it is somewhat popularly written, and treats shortly and concisely of its subject. A brief reference to the zoological classification of the domestic animals introduces us to the body of the work, which is devoted to a consideration of the nature of animal foods and their relative nutritive values, the laws governing the transmission of hereditary characteristics, animal hygiene, the breeding of horses, oxen, sheep, and swine, and the best types to select for given purposes. The last twenty-five pages contain a description of the dentition of the four species of animals above mentioned. Considering its small size and moderate price, this book presents a very large amount of useful, if not positively novel information.

Abstracted Notes.

Paraphymosis in the Horse.—M. Schmey, of Benthen, describes a case that came under his notice as follows:—A horse when suffering from colic was given a dose of aloes; then, in order to cause him to urinate, a piece of horse-radish was introduced into the urethra—a common practice in Silesia. The expected result did not occur, the colic persisted, and so the patient was trotted, during which exercise his penis several times emerged from the sheath. By-and-by this organ became tumefied, and could not be withdrawn into the sheath, the urine escaping drop by drop. This condition was due to efforts to urinate, and perhaps also to blows from the whip received by the penis

during the trot. When the veterinary surgeon examined the patient he found him in a high state of fever, the penis hanging at an angle of 45°; the anterior portion, protruded for a length of nearly 40 centimetres, was intensely swollen; the *glans penis* was 8 centimetres in diameter, and situated immediately behind it a fluctuating swelling, the size of a large apple; the remainder of the protrusion was evenly swollen, and showed two or three weals, probably from the whip. The *meatus urinarius* was red and tumefied. The sheath strangled the penis. On rectal exploration the bladder was found distended with urine; and manipulation did not lessen its volume, but a large quantity of dark-coloured urine escaped on passing the catheter. The paraphymosis was treated by daily dressings with potassium iodide ointment, to which 1 per cent. of iodine had been added. The penis was suspended by a bandage from the back and around the body. On the third day the fever had disappeared, urination was voluntary, the swelling had gone down; frequent fomentations with camphor water hastened cure, which was complete in five days.—*Revue Vétérinaire*, from *Berliner thierärztl. Wochenschrift*.

Amputation of the Uterus and its Dangers.—M. Schuenhoff, in the *Berliner thierärztl. Wochen.*, describes three cases, in each of which it was found necessary to amputate the prolapsed uterus. In the first case, that of a cow, the womb descended as far as the hocks, and was a good deal injured. After removing the placenta still adhering, the practitioner applied, a few centimetres behind the vulva, a ligature drawn very tightly by two men, and then the womb was amputated by the bistoury. There was no hæmorrhage. The vaginal stump was easily replaced. In a very short time the cow, which at first had been very quiet, bellowed loudly, became obstreperous, tried to break away, and fell dead. In the second case, also in a cow, amputation was not performed immediately after application of the ligature, but two minutes after the operation the patient became stupid, motionless, held down her head; then, after making several rhythmical movements of the head and neck, fell at the end of three minutes without uttering a cry. In the third case a sow showed a complete prolapse of the womb, and all attempts to reduce it were fruitless. A tight ligature was applied to the neck of the womb, and the organ was amputated. After a few minutes of quietude the patient began to squeal, moved the limbs rapidly as in running, and died in five minutes. The

author points out that the prolapsed uterus is virtually a blood cistern, and the sudden re-entrance of so much blood into the circulatory system interferes with the working of the heart, and as a result pulmonary and cerebral hyperæmia.—*Ibid.*

Malignant Pustule.—M. Jacquot, of St. Nicolas-du-Port (Meurthe-et-Moselle), points out the dangers to which veterinarians and those employed upon the farm are exposed from malignant pustule. He observes that similar diseases do not affect all animals in like degree, and that the conditions of life may be the determining cause of this dissimilarity. Anthrax is a disease of this type. The *Bacillus anthracis*, which in a very short time proves fatal to the most robust ox or sheep, appears to favour man, the human species offering a much greater resistance to its powers. If a great many inoculations have been followed by death, it is because the unfortunate being who has been so inoculated is not familiar with pustule, and only calls in the physician when the tissues of his body have become invaded by the organism. M. Jacquot relates a case which occurred in his own district, the unfortunate patient being one of his own clients who had soiled his face with anthrax blood. "For two days the patient, a farmer, had noticed a red spot, resembling a fleabite, and that it itched slightly. On the third day a small inflammatory zone encircled the spot, then a vesicle appeared, and at the same time the pruritus increased. On the fourth day the vesicle ruptured, probably as a result of scratching, and there was seen a reddish-violet depression which soon became brown, then black and covered with a yellowish discharge. At the seat of the first vesicle others appeared, much smaller, filled with a serous fluid. The inflammatory zone extended little by little into the cervical region, and deglutition was impeded to a slight extent. On the fifth day the family of my client became alarmed, although the sufferer did not complain, and in spite of cure promised by a 'know-all' (*un homme qui s'y connait*), as I was in the district my advice was asked. Seeing the case to be serious I told them to lose no time in securing medical aid, and I offered to assist them. An hour afterwards I returned with Drs. M. and W., who found on examination the following train of symptoms :—The scar of the first pustule appeared flattened, because the surrounding structures were swollen. The scar was about a centimetre in diameter, and surrounded by small vesicles

filled with a serosity (vesicular areola of Chaussier); the subjacent tissues were distended by inflammatory œdema extending from the chest to the neck. Deglutition became more painful as a result of compression of the larynx and nerves, and asphyxia became imminent. Temperature 38·5° C. A remarkable fact—quite, however, characteristic of malignant pustule—was the absence of sensibility in the parts.

Treatment consisted in cauterisation by the thermo-cautery. Iodine was injected and compresses of 1—1000 solution of sublimate applied. Before the treatment was applied some of the serum was obtained and afterwards injected under the skin of a guinea-pig, which died fifty hours afterwards from anthrax.

The moral to be drawn is that veterinarians should familiarise themselves with the early signs of malignant pustule, and arrest its course without delay by cauterisation and antiseptic compresses.—*Recueil de Méd. vét.*

Acute Encephalitis treated by Pilocarpine (by M. Pietro Massa, Genoa).—The subject was a mare belonging to the tramways company of the city of Genoa. She had been doing her regular work in drenching rain, and was brought in during the daily visit of the veterinarian. He was requested to see her because she refused to take her food, held her head down with closed eyes, and was indifferent to what was going on round about her. When brought out of the stable for examination she staggered and almost fell. The conjunctiva was found markedly injected, the pulse and respiration normal, the temperature 38° C. Auscultation of the chest revealed nothing in particular. Cerebral congestion was diagnosed, and the following treatment instituted:—a sinapism to the abdomen, stimulating embrocations upon the head and neck and limbs; an aloetic ball was given, but venesection avoided, owing to the low condition of the patient. In the evening the same symptoms were manifest, the comatose condition persisted, there were no attempts to feed, and when water was given the mare plunged her lips into the liquid but made no efforts to swallow. Temperature was 38·5° C.

During the night the patient had convulsions and sadly knocked herself about, and as a result was covered with abrasions and excoriations. In the morning examination of the patient revealed total insensibility, the eye was fixed and the expression haggard; the jaws were so firmly fixed that to separate them was out of the question. The pulse

was quickened, as also the respiration; the temperature was 38·8° C. A subcutaneous injection of 10 centigrammes of the hydrochlorate of pilocarpine was given, and a seton put in the neck. During this second day the patient had an exacerbation of the symptoms, lasting half an hour; she appeared as if mad, running against the wall; the respirations were laboured, the pulse tumultuous, the temperature had risen to 39·6° C. An injection of 20 centigrammes of pilocarpine was given.

On the next day the general state of the patient was less alarming. She still carried the head down, sensibility had not yet returned, but the bowels had acted slightly, and the jaws were not so fixed. A further injection of pilocarpine (10 centigrammes) was given. The following day showed a decided improvement. She had recovered her senses somewhat, and had succeeded in swallowing a drink, and could carry her head better. The drench consisted of 300 grammes of sulphate of soda and 20 grammes of bromide of sodium.* The patient gradually recovered her normal state of health, and returned to work in a little over three weeks.—*Ibid.*

Nature, Etiology, and Prophylaxis of Bovine Hæmaturia.—Professor Galtier, who was deputed to inquire into an outbreak of hæmaturia in the department of Indre, reports that his previous conclusions on the subject of this disease have been verified. His principal conclusions are as follows:

1st. Bovine hæmaturia, or blood in the urine, is the dominant symptom of a disease which has its chief seat in the bladder. It is of a congestive, hæmorrhagic, vegetative, ulcerative, or necrotic character, and is aggravated by the function of the organ.

2nd. Hæmaturia appears in those districts where the pastures are marshy and contain many of the *Ranunculaceæ* (spearworts and crowfoots), is due to the ingestion of these plants, and is seen most commonly in the spring-time.

3rd. It is not due to either animal or vegetable parasite. Neither is it contagious nor hereditary.

4th. If observed at the onset of the disease hæmaturia may be arrested by a simple change of diet; but if somewhat advanced, it is continually aggravated by the function of the bladder itself.

5th. Prophylaxis of vesical hæmaturia should be directed exclusively to a change in the method of cultivation and

* One gramme = 15·4325 grains.

eradication of spearworts and crowfoots. Observation has shown that the disease disappears in those localities where the pastures have been so treated and drained, whilst it persists and ravages those districts where the pastures are low ground, marshy, and rich in the above-mentioned plants. —*Journal de Médecine vétérinaire et de Zootechnie.*

Preliminary Note on a Concentric Corpuscle present in the Cuticular Portion of the Horse's Stomach. — Professor Mettam stated that he had found concentric bodies in the mucous membrane of the horse's stomach. In the stomach of this animal we find the mucous membrane differs according to the part of the stomach examined. In the cardiac portion the epithelium is stratified and squamous; in the pyloric, of the usual kind; and these two kinds of epithelia meet at an abrupt line—the so-called cuticular ridge being found both on the edge and in the epithelium of the stratified squamous epithelium of the mucous membrane for a distance of a third of an inch from a ridge. They are not numerous. They may occur at any point in the thickness of the epithelium, from the intra-papillary fundus to the free surface. The corpuscles are spherical or slightly ovoid in shape, and entirely cellular. The cells are disposed concentrically around a large cell which exhibits a faintly stained centre, and near this is a clear body which may be nucleus or the axis-cylinder of a nerve-fibre.

He then discussed the possible nature of the body, expressing the opinion that it was not an encysted parasite.

He promised a further communication on the subject.— *Proceedings Scottish Micros. Soc.*

Coccidia in Cattle.—Professor A. Guillebeau (in *T. Nat. Ges. Bern*) finds that the disease known as *rothe Ruhr* (dysentery) in cattle is associated with the presence of *Coccidium oviforme*. Zschokke and Hess had already suggested *Coccidia* as a very probable cause of the disease. It seems likely that the hare (and rabbit) is instrumental in spreading the disease.—*Journal of Royal Micros. Society.*

Living Parasites in the Blood of Cancerous Persons.—Dr. M. Kahane (*Centralb. f. Bakteriol. u. Parasitenk.*) asserts that if pieces of tumours are placed in sterilised physiological salt solution immediately after removal and straightway microscopically examined, bodies endowed with lively characteristic movements may be observed;

the movements are such as are only to be explained by the presence of cilia or flagella. The bodies are amœbiform, highly refracting corpuscles; these micramœbæ are free in the blood-plasma, but may be seen to enter red corpuscles, within which their lively movements continue. When dead they have a roundish contour, and are not to be distinguished from blood-plates. The presence of these bodies resembling swarm-spores suggested to the author that the plasmodium form might be found. This is described as a body having processes like the sails of a windmill, and was made more visible by means of methylene blue. The author finds that he is unable to resist the impression that his parasite morphologically and biologically resembles the parasite of malaria.—*Ibid.*

Muciferous and Resiniferous Cells in the Yew.—M. L. Mangin (*Bull. Soc. Bot. France*) has found, in the leaves of the yew, muciferous cells which differ from those known in other plants by the fact that they contain a mass of protoplasm, a nucleus, and grains of chlorophyll; they are specially abundant in the palisade tissue. This distribution of resiniferous cells through the green parenchyma in the yew is associated with the absence of the resin-canals characteristic of other conifers.—*Ibid.*

Fungi which feed on Arsenic.—Herr S. Csapodi (*Stz. K. Ungar. naturw. Gesell. Budapest*) records the remarkable fact that several mould-fungi, especially *Mucor mucedo*, will grow on solid compounds of arsenic, dissolving them and giving off arsenical vapours.—*Ibid.*

Experiments as to Vitality of Anthrax Spores in Earth and Water.—Drs. S. Sirena and G. Scagliosi (*Centralbl. für Bakteriol. u. Parasitenk.*) record some facts relative to the vitality of anthrax in earth, in sea, drinking, and rain water. These media were used sterilised and unsterilised, and kept at rest and in motion. It was found that anthrax spores were alive and retained their virulence in distilled water for over twenty months; in earth, moist, dry, or covered with water, for over two years and nine months; in sea water for one year and seven months; in drinking water and in sterilised sea water for seventeen months; in drain water for nearly sixteen months; and in a decomposing spleen for more than two years. It would seem that the media in which the anthrax has lived has some influence on the virulence of the organism.—*Ibid.*

New Surgical Method for the Relief of Ventral Herniæ, especially applicable to Umbilical Hernia.—M. Degive, Director of the Veterinary School of Cureghem (Belgium), describes a new operation for the relief of hernia, of which the following is a *résumé :*—The patients are placed upon the back, and the site of the operation washed and disinfected; two needles are passed through the skin and the two tips of the hernial ring, always taking care to press back with the finger the skin of the sac of the hernia on the inside of the tip traversed by the needle. On applying the hernial forceps the arms of the forceps are brought to within about eight millimetres (one third of an inch) of each other. To prevent displacement of the forceps the needles are withdrawn, and six horseshoe nails immediately inserted beneath the skin. To lessen the weight of the instrument, M. Degive has had made forceps with arms 20 cm. long, 16 mm. wide, and 8 mm. thick, each arm formed of a layer of iron 3 mm., and a layer of wood 5 mm. in thickness fixed together.—*Revue vétérinaire et Annales de Méd. vét.*

Vesical Calculus in a Bitch : Laparo-cystotomy followed by Cure.—A bitch, apparently in good health, was in the habit of squatting on her haunches, making attempts to urinate, and only suceeeding in passing a few drops of urine ; she frequently showed these symptoms. The patient was presented for examination to Messrs. Hendrickx and Liénaux, of the Cureghem Veterinary School. After a careful exploration, there was noticed in the pelvic cavity a tumour the size of a fowl's egg. The bitch was anæsthetised, put upon her back, and the abdominal wall shaven and disinfected. After making an incision parallel with the linea alba, through the thickness of the abdominal wall, and having opened the peritoneum for a distance of five centimetres, a hard rounded calculus was found in the bladder. This organ was drawn out of the abdominal cavity and a transverse incision practised over the stone, which was extracted. The bladder was washed with a solution of boric acid. The vesical mucous membrane was first sutured, then the muscular coat, lastly the wound in the abdominal wall.

After-treatment consisted in antiseptic dressings to the wound and the administration of tonics. Once cured the patient did not show any further genito-urinary troubles. —*Ibid.*

Clinical Cases.

DIABETES MELLITUS IN THE HORSE.

By E. F. de Jong, F.R.C.V.S., Edinburgh.

Although ordinary diabetes is of common occurrence, diabetes mellitus is seldom met with, or at least I should say diagnosed, and consequently the following case may be of interest to your readers.

The symptoms presented by the patient were very similar to those of diabetes insipidus, viz. great thirst, coat dry, harsh, and scurfy, general unthriftiness, and frequent micturition. However, my attention was drawn towards the urine, which was of a syrupy consistence, contrary to what occurs in the insipidus form, and therefore I had some collected for me.

On chemical examination I found that sugar existed, and to make sure (as my Fehling's solution had been made up some time) I took some urine to the Royal Infirmary in this city, where it was analysed and reported to me as containing large quantities of grape-sugar. The specific gravity was 1060, greatly contrasting with the very low one of the insipidus form.

An important clinical feature in this case was the *sub-normal* temperature which existed throughout, on one occasion being as low as 98·2° F., and never rising above 99·5° F. until convalescence was established, when it was 100·5°.

As regards the treatment, I gave half-drachm doses of codeine daily in the form of a bolus, and in the course of a week the urine was again examined, and the amount of sugar was materially diminished.

In addition, starchy and sugary foods were abolished as far as practicable, and after three weeks' treatment the animal had so greatly improved in condition that I advised the owner to get rid of it, which in one sense I regret, as the patient has gone from under my observation.

As regards the use of codeine in these cases, I have to say that I was led to adopt it on account of its beneficial results in glycosuria in the human subject; and whenever occasion may again arise, either in the dog or the horse, I shall certainly give it another trial, as its effects were most marked.

This case has impressed upon me the necessity of examining the urine whenever possible, as I am convinced that the testing of urine is greatly neglected by practitioners, and I say so feelingly.

Laminitis has more than once been diagnosed when the disease was that of the kidney. This would never occur if we only took the trouble to examine the urine, which, if it contained tube casts, albumen, &c., would at once clear up the diagnosis.

Kidney, as also heart diseases, are *said* to be rarely met with in the horse, but no doubt they are as common as in the human subject, but from want of thorough clinical investigation are not diagnosed. Professor Stockman, of the Dick Veterinary College, has clearly shown, in an article in the *Journal of Comparative Pathology and Therapeutics* some little time ago, that the various valvular diseases of the heart could be easily diagnosed, and I maintain that if the urine were tested more frequently, disease of the kidney would be oftener revealed.

ACTINOMYCOSIS.

By W. Scott, M.R.C.V.S., Clive, Somerset.

A few years ago actinomycosis was an unknown word in bovine pathology, and a large percentage of pathological conditions affecting cattle were put down as tuberculous or cancerous in their origin and nature. With the advancement, however, of pathology and more accurate means of diagnosis, pathologists have been able to classify a goodly number of those obscure diseases, and place them under the heading of actinomycosis, which primarily belongs to the class of infective granulomata. This is a very interesting disease, inasmuch as it presents itself in so many different forms and, I may say, situations of the animal body. I think, however, as far as this country is concerned, the organ which becomes most affected is the tongue, and that principally in low, flat, damp districts. It has been my lot during the last six weeks to be called upon to treat no fewer than six cases of confirmed "lingual actinomycosis." It is with the idea of laying the details of these cases before your readers that I now hold pen in hand. On the 5th January, 1895, I was called upon to see an eighteen-months-old heifer "which had something the matter with her mouth." The symptoms presented were

those consistent with oral disorder, namely, profuse salivation, smacking of lips, and difficulty in mastication. A little short damp food was placed before her by the owner, and it was sufficient to show the casual observer how admirably nature can accommodate herself to circumstances even in the lower animals, for she no sooner grasped the provender before her than she threw her head upwards and backwards, placing the neck on the stretch, which position she would maintain until the bolus was swallowed. On opening the mouth the tongue at the tip and for 3½ inches back, both on the ventral and dorsal surface, was one mass of ulceration; between the ulcers could be seen some distinct nodules of a yellow colour and hard consistence. The peculiar and instructive position of this patient during mastication can now be easily explained.

Case 2 happened at a farm which I may say is practically a hotbed for these affections. Recently I have had two cases to treat at one time. They presented the usual symptoms, and examination of the mouth confirmed the diagnosis. In both the ulcerations were situated pretty far back on the thick part of the tongue.

Case 3 was the most interesting of all, by virtue of its complications. This was a two-year-old heifer, showing the usual symptoms, but superadded to which was well-marked stertorous respiration, in fact the stertor could be heard yards away, and distinct parotidean and submaxillary swellings were externally visible. On examining the mouth the posterior part of the dorsum of the tongue was one mass of ulcerations studded here and there with yellowish nodules. Moreover, the soft palate had not escaped the destructive process, having no doubt become contaminated secondarily. The swelling of the glands as well as the soft palate would no doubt account for this pharyngeal stertor.

Case 4 was in an aged milch cow, where there were a few well-marked ulcers on the dorsal surface of the tongue.

Treatment.—As will be plainly seen, I have not gone into the symptomatology or pathology of these individual cases very minutely, first because the diagnosis of lingual actinomycosis is a very simple matter; and, secondly, I wish to lay before your readers my success as far as the therapeutic aspect is concerned. The agents used in each case were the same, except in Case 3, when the treatment had to be added to.

Each bullock was made as comfortable as possible, a loose box being used when practicable. The food consisted

of pulped roots, a little oil-cake, and bran mashes, water *ad libitum*.

Medicinally, twelve powders were made up for each bullock, each containing Pot. Iod. ʒj, Ferri Sulph. ʒj, Fenugreek ʒiij; one powder to be given every morning in bran mash. Locally the tongue was painted with Sublimed iodine grs. xxx, Pot. Iod. ʒij, Aqua ℥viij. This lotion was applied to the affected part once every day for four days in succession, then every other day, and gradually discontinued as the disease stopped. A piece of stick, round one end of which a piece of tow was rolled, was used to paint the parts.

Case 1 was discharged in eighteen days from the commencement of treatment. Case 2.—No. 1 was right in thirteen days, No. 2 in sixteen days. Case 3 required three weeks and three days. I may here state that a blister was applied round the throat on the sixth day, as the stertor was not disappearing. The blister was composed of Hydrarg. Iod. Rub. ʒij, Hydrarg. Bichlor. grs. xxv, Axunge ʒij. Rubbed in for half an hour. On the second or third day, the blister had acted well and the stertor disappeared. Case 4 was discharged in ten days' time.

A few days after writing this I was asked to look at a yearling bullock, which had a tumour in the parotidean region. Passed exploring trocar and cannula, and by slight pressure was able to evacuate creamy-looking pus. Lanced the tumour, whose contents I cannot liken to anything else, either in consistence or appearance, than Devonshire cream. This tumour had been seen for a considerable time, and I am of opinion was also actinomycotic.

A few months ago I was called to see a black cart-horse, which had round swellings on the skin over the shoulder and neck on the left side. These swellings varied from a bean to a good-sized marble. Passed exploring needle into largest, and evacuated in the groove some creamy-looking pus. Lanced each one of these swellings individually, and pressed out the contents. The pus was quite different from ordinary pus, having the consistence of putty, and like clotted cream. I am of opinion that that too was a case of skin actinomycosis. I was rather pressed for time, or I should have examined the contents microscopically. This case was treated with white arsenic.

P.S.—None of the ulcers were scraped by knife, nor were the yellow nodules lanced.

BRAIN DISEASE—CEREBELLAR.

Clinical history by Captain A. P. Longfield, Royal Artillery.

Communicated by Veterinary-Captain A. J. Haslam, M.D., C.M., F.R.C.V.S., A.V.D., Newbridge.

Veterinary-Captains Smith, Rutherford, and Butler, A.V.D., and others, within recent years, have placed accurate accounts of brain disease of the horse on record, which go some little way towards furnishing us with reliable facts concerning this complicated subject. As stated by Captain Rutherford in the *Journal of Comparative Pathology* for March, 1893, it is our duty to place on record any case likely to be of future, if not of immediate, help.

The following case presents *definite* symptoms, but as far as can be argued from our present knowledge of localisation of brain disease, it adds no further light to this difficult search.

An Australian mare, aged 7, belonging to the 24th Field Battery, Royal Artillery, at Jhansi, of quiet willing disposition. The clinical history is, as far as possible, given in the words of Captain Longfield, R.A., the commanding officer of the battery, to whose careful and reliable observations we are indebted for this case. At 4.30 p.m. of the 4th September, 1893, on leaving the watering trough, Battery horse No. 92 was reported by the orderly sergeant as being "giddy," and staggering a little towards the left side. I looked at her, had her walked about a little, and, finding nothing wrong, ordered a bran mash and sent her back to the stables. The next day a similar report was made, and I saw her at once and found all her movements unnatural, and so sent her to the infirmary. Next day her head was lowered and inclined to the left, and she could neither raise it nor turn it to the right. Dr. Haslam, passing through Jhansi on the 6th September, was asked to see the animal. Dr. H. ordered her to be kept quiet in a darkened box, and to receive ʒvi of aloes at once, and ʒj of Pot. Iodide three times daily in drinking water; and if purging did not take place on the second day, the aloes was to be repeated. Dr. H. considered there were symptoms of brain pressure, and asked that careful observations and inquiries as to history of injury might be made. Dr. H. found no enlarge-

ment on head, no difference in size of pupils, and no abolition of reflexes in any part of the body.

For the next two days she appeared much the same, viz. standing close to the wall, always with the wall on her left side, frequently knocking her head gently against it, and each time appearing astonished at having done so.

On 8th purging had not taken place, so another ʒvj aloes were given in solution.

On 9th she appeared much better; she could straighten her neck and raise her head, but rested her head a good deal on the window-ledge.

On 10th physic acted well. She walked slowly round the box occasionally, always on a slight incline to the left. After this date she gradually began to lose power over the rest of her body, *i. e.* she could not bend her knees, and shuffled about in the stall, always inclining to the left instead of forwards, or to the right.

On 17th she seemed much worse and more restless; she *kept walking* round the box, always turning to the left, and *did not straighten* her neck, but at night seemed better and easier.

On 18th September seemed a great deal better, and remained so for two days. Anyone could approach and handle her quietly, but the least abrupt movement startled her so much that she would throw herself back violently against the wall. Her appetite and health otherwise perfect.

On 21st Dr. H. saw her, and ordered ʒiij Pot. Iodide three times daily in drinking-water. Eats bran mash and Guinea grass freely. Lies down most of the day. No alteration of symptoms until 23rd, when she was at her best, walking straight to grass held before her in an almost natural manner.

On 24th she was worse than ever; threw herself against bales across the doorway and breaking them.

At 9 a.m. on 26th was lying down, and in trying to get up fell backwards, breaking bales and falling outside of box. All attempts at moving her produced violent struggling, and, being dangerous to the men, a temporary shelter was erected over her to keep off the tropical sun. Never at any time had the mare looked as "wild" as to-day. At 2 p.m. she got up, and was coaxed into the box, where she remained standing all day, with hind quarters in a corner of the box and head down. She looked rather a wretched sight after her struggling, but had not suffered in condition.

On 27th much quieter, walking round box; seemed sensible of being spoken to, feeding well, and showing no violence.

For the next few days, up to the 4th or 5th October, she does not seem to have regained power over her neck muscles. She still flexes neck to the left, and loses power of movement and balance when she tries to reach grass held near her right side; she only obtains the grass by making a circuit to the left. She looks fairly bright.

On 4th and 5th October became a little violent.

On 6th mare fell and lay still, trying at times to get up, and struggling in attempts to do so. Farrier gave a stimulant of Sp. Æth. Nit. ʒij, Sp. Rectif. ʒj, Aqua ad Oj, which revived her.

On 7th still lying down, galloping a good deal with legs, then quieting to a trot, and lying still. Telegraphed for Dr. H. She ate mash and drank gruel while lying. Gradually became worse and more violent. At 11 p.m. the head stretched out, and death took place without further struggle.

Every inquiry failed to discover history of a fall or injury in any way, either shortly before the illness or since joining the battery.

Autopsy (made by Dr. H. at 8 a.m. on 8th October).—The surface of the right cerebral hemisphere for about two square inches was covered with a little sanguineous fluid. On right side of cerebellum, on superior surface, a cystic tumour was seen protruding, and on the brain being put into water the tumour floated out as a soft jelly in a delicate membrane about the size of the yolk of a hen's egg.

Heart, kidneys, and lungs healthy and *free from* cysts; intestines normal; liver somewhat congested; spleen distinctly enlarged, congested, and of very dark colour.

The brain was sent to the Lahore Veterinary School, and the following report by Veterinary Captain J. Nunn, F.R.C.V.S., C.I.E., D.S.O., was received:—"A large cavity on the right side of the cerebellum, and which was empty. If it had been an abscess it had ruptured and the pus escaped. Round the cavity, moderately adherent to the walls, was a membrane made up of organised fibrous membrane. I could find no trace of anything resembling 'heads' on it to lead me to suppose it was an hydatid or of parasitic origin, and the conclusion I came to was that it was a simple cyst. The walls of the cavity were very smooth, and this, with the highly-organised nature of the

tissue of the membrane, made me conclude that growth had been gradual, causing absorption of the brain-matter by gradually exerted and increasing pressure."

Remarks (A. J. H.).—General sensation and sight unaffected, but the eyes were not examined for optic neuritis. Co-ordination fairly good throughout, with occasional spasms of inordinate, irregular muscular contractions. Movements no worse when blindfolded. No motor paralysis. No delirium or mania. Slight loss of memory. Slight rigidity of extensors of forearm, producing shuffling gait. The tonic rigidity of left neck muscles was the most marked feature of all. This contraction cannot, in the present state of our knowledge, be attributed to the tumour, unless we conjecture indirect pressure of the tumour to have caused the mass of the cerebellum to press on and irritate some spinal accessory fibres of the opposite side, but this is not probable. As a matter of fact, very little is positively known as to the function of the cerebellum, and motor areas have not been proved to exist there. It has been supposed to have more to do with sensation than motion.

How far the symptoms of this case are similar to those seen in *cerebellar* "sturdy" or "gid" of sheep, it would be interesting to learn from those *familiar* with the disease and its localisation for operative purposes.

The absence of cysts in other organs and the clinical history perfectly corroborate the opinion of Veterinary Captain Nunn.

Congestion of spleen, &c., I cannot account for.

Continued appetite and retention of condition are fairly constant concomitants of slow localised destruction of brain tissue.

The long time for "physic" to act in cases of brain disease is worthy of note. Captain Rutherford, A.V.D., in the excellent contribution before mentioned, appears to have noticed this.

Pot. Iodide was in the first instance given in the absence of Pot. Bromide, and afterwards was pushed in order to get possible absorbing effects.

Not only by veterinary observers, but in human practice, it has been prominently brought forward that a considerable encroachment of brain tissue can take place by a slow growth without affecting health or producing one suspicious symptom. In some cases, as perhaps in the one just described, a slight local inflammation or softening gives rise to the train of symptoms resulting in death. In

some instances the unsuspected lesion is found only in the dissecting room.

If so much loss of brain tissue can occur without outwardly affecting the most sensitive and highly-organised individual, if in chronic abscess of the human brain all we can depend on are headache, fever, and optic neuritis, and yet all or some may be absent—if these are facts, and there *is abundant evidence* that they are, in such cases, when urgent symptoms appear roused by a softening, a congestion, or by an extra pressure, *how can we* expect any other than *vague* and *indefinite signs?* It seems to me that, in spite of the reliable data furnished to us by such careful investigators as Ferrier, Horsley, Munck, and others, the localisation of chronic lesions must ever remain *very difficult*, and *doubtful at the best.* I think we may hope for more from the perfection of the operative method and wound treatment than from the discovery of motor areas. When we can remove a large portion of the calvarium at once and replace it, we may then hope sometimes to reach and remove the cause of the urgent symptoms before it is too late.

A CURIOUS CASE.

By J. Powrie Slidders, College Assistant and Demonstrator, Royal (Dick) Veterinary College, Edinburgh.

On the morning of Monday, February 4th, a setter bitch was admitted to the College Infirmary, apparently suffering from tonic or tetanic spasm of nearly all the voluntary muscles of the body.

The sole history obtainable was that she had been in the same condition for three days.

On further examination the bitch was found to be utterly unable to stand, limbs firmly extended, the muscles of the back and superior cervical region and the extensor muscles of the limbs corded and tense. Opisthotonos marked. A gentle approach to her, and even a slight bustle caused no very marked exacerbation of the spasm, the eyeballs were not retracted, the membrana nictitans never moved, the lower jaw was freely movable, the ears were not pricked, and the tail was feebly wagged in response to any overture. In short, the spasm seemed to affect all the voluntary muscles of the body with these exceptions—the muscles of the face, ears, eyes and lower jaw, and those of the tail.

Examination of her eyes showed the pupils equal, contracting and expanding freely in response to the action of light. Temperature *per rectum* 101$\frac{2}{5}$° F., pulse intermitting and rather small, 94 per minute, visible mucous membranes pale.

Under these somewhat paradoxical circumstances the treatment adopted consisted of,—a warm enema given immediately, moderate clothing to the body, medium doses of the extract of Belladonna and Potass. Bromid. every three hours; a little fresh milk to be given every now and again. The act of deglutition was performed naturally and easily, but the stomach would retain nothing—everything was rejected.

The patient continued in the same condition all day, but next morning she was much depressed, internal temperature 98$\frac{3}{5}$° F., surface temperature low, pulse eighty beats per minute, wavering and thready, and the spasm no whit relaxed. She gradually sank, and died about five o'clock that evening.

Post-mortem examination showed the abdominal and thoracic viscera normal with the exception of the small intestine, which was slightly inflamed, the stomach empty and flacid. The vessels of the brain, spinal cord, and meninges were congested, and a quantity of reddish serous fluid escaped when the skull-cap was removed. A distinct blood-clot was found external to the dura mater, and extending in a spiral direction from the right lateral lobe of the cerebellum under the medulla and cervical portion of the cord, as far as the fourth cervical vertebra.

To my mind the peculiar features of this case were,—the constant and unremitting nature of the muscular spasm, the comparative freedom from pain which accompanied it, the freedom of the muscles of the two extremities, viz. those of the head and tail, and the entire absence of any wound, bruise, or mark of external violence. The vomition may be accounted for by the pressure exerted by the clot on the cerebellum.

RUPTURE OF THE OMENTUM.

By W. Harris, sen., M.R.C.V.S.

The patient was a bay four-year-old carriage gelding, recently bought for a match pair. He was a big, gross, healthy-looking animal, and continued so up to the time of his illness.

I was called to him for the first time on September 15th,

when he was suffering from lymphangitis, and also a bad cold and sore throat. He was treated successfully for both, and in due course returned to exercise.

On October 19th I was called in again, as the sore throat had returned. The throat was blistered, and sedative medicine administered in balls.

October 31st.—Horse much better. Throat re-blistered; returned to exercise a few days later. He continued to progress favorably, and during the month of November I did not attend him at all. I was, however, called in on December 1st, as he was not feeding very well; pulse 46, membranes healthy. Tonic medicine given. My suspicions were aroused for the first time as to an abscess forming on the omentum.

December 8th.—First signs of pain were observed by the attendant. I arrived on Monday, December 10th, whilst the horse was at exercise, and waited for his return. The groom told me he had not been far, and that the horse was very fresh,—in fact, kicking his heels up. Directly he was in his box he commenced pawing the ground, then stood with his head between his fore-legs, not attempting to lie down, but evidently suffering from violent abdominal pain. This continued for ten minutes, when the pain left him. His pulse was accelerated, 64; membranes congested. Balls containing Terebinth-Ven. and Ferri Sulph. were given twice a day. Feeding well,—in fact, did so up to his death.

December 11th and 12th.—Horse much better, no return of the pain.

December 13th.—I had a summons in the afternoon to attend at once. On arrival I found the horse in great pain at intervals. Pulse 60, temperature 102°, respiration accelerated and blowing. He had been out to exercise for half an hour, and on his return immediately commenced pawing and broke out into a deep perspiration, the groom telling me that he seemed to have lost all power behind. Chloral, ʒiv, in ball was given, likewise a hypodermic injection of morphia ♏xxx, and left two chloral balls as above, to be given at intervals of four hours should the pains continue, which they did, so the balls were given. The animal, however, died in the early morning. The diagnosis was an abscess on the omentum; prognosis unfavorable.

The *post-mortem* was made on the same morning as the death. The balls were found intact in the stomach. The whole of the organs were perfectly healthy. Death

was no doubt due to the adhesion of the mesentery to the stomach and spleen, connecting those organs and causing an extensive rupture of the omentum.

Looking at the specimen from a pathological point of view, I feel inclined to believe that the adhesion was of very old standing, perhaps a year or two. May it not even have been congenital? The formation and size of the vessels all tend to favour this view.

ROYAL COLLEGE OF VETERINARY SURGEONS.

The quarterly meeting of the Council of this College was held at the College Building, 10, Red Lion Square, Bloomsbury, on Wednesday, the 23rd ult., Mr. W. Hunting, the President, occupying the chair. The other members present were: Mr. F. W. Wragg, General Sir F. Fitzywgram, Bart., Messrs. A. W. Mason, J. A. W. Dollar, Prof. J. McFadyean, J. Fraser, Prof. W. A. Edgar, H. Kidd, J. Abson, Prof. J. McCall, M. Hedley, Prof. W. O. Williams, Prof. J. Penberthy, R. C. Trigger, J. E. Peele, E. Faulkner, H. Thompson, G. Elphick, H. Lawson, A. Wheatley, J. B. Nisbet, and W. J. Mulvey.

A telegram from Mr. Hunter, Newcastle-on-Tyne, announced that he was too ill to attend. A similar telegram was read from Mr. J. F. Simpson.

The minutes of the preceding meeting were read and confirmed.

The late Professor T. Walley.

Mr. R. C. Trigger said that since their previous meeting they had lost one of the most eminent and useful members of that Council, and not only so but one whose death was an inestimable loss to the whole profession and to the stockholders of this country. He alluded to the late Professor Walley. He was sure it was the wish of that Council, at its first meeting after hearing of the death of the late professor, to avail itself of the opportunity of passing a vote of condolence with the family of the late Mr. Walley in the bereavement they had sustained. He moved that the secretary be directed to express to the family of the deceased gentleman that Council's sincere sympathy with them in the loss they had sustained.

Mr. Fraser, in seconding the motion, said that he endorsed all that Mr. Trigger had said in praise of the late Mr. Walley.

The motion was carried unanimously.

A Fellowship Thesis.

Mr. Green, who had passed the fellowship examination, asked that he might be allowed to take a copy of his thesis. Permission was, at the instance of Mr. Trigger, accorded to Mr. Green to copy the paper at the College building.

Students' Complaints.

Letters were read from Arthur Gresswell and Wemyss Mortem, the former a veterinary student at Edinburgh, and the latter a student at Glasgow, each complaining of having been excluded from the examination in December owing to their having been a few

minutes late, and under circumstances which they regarded as unjustifiable. Mr. Gresswell asked for the return of his fees.

Mr. Trigger moved that Mr. Gresswell be informed that his fees would "hold good for the next examination."

This was seconded and adopted.

The letters were referred with reports relating to the examination, which were subsequently relegated to the examination committee.

Dr. G. Fleming and the Examination of Shoeing Smiths.—A Denial.

The *Secretary* read the following letter, which explains itself:

"Higher Leigh, Combe Martin, North Devon;
"January 1st, 1895.

"To the Secretary of the Royal College of Veterinary Surgeons.

"Dear Sir,—Will you kindly oblige me by laying this letter before the Council of the Royal College of Veterinary Surgeons at its next meeting. In the report of the meeting of the Council held on November 28th last, which I have just perused, I find it stated by Mr. J. A. W. Dollar with regard to the registration of shoeing smiths that the examinations I had conducted on behalf of the Farriers' Company were a fraud on the public, the men being 'examined for five minutes in a little underground office at Lawrence Pountney Hill, and after a few questions occupying not more than five minutes, received their certificate, and were sent forth to the world as registered shoeing smiths.' I am desirous of assuring the Council that there is not a word of truth in the statement that I have examined men in a little underground office in the locality named, and that the examination did not occupy more than five minutes. I never examined in any underground office there or anywhere else, and I never satisfied myself that men were competent, according to the standard agreed upon, in five minutes. The mode and duration of the period of examination of shoeing smiths, as carried out by me, was that fixed by a sub-committee of the Worshipful Company of Farriers, I believe, and followed by the other veterinary examiners. The time was certainly never less than fifteen or twenty minutes, and it frequently extended over half an hour, the time being kept by the assistant secretary of the company, who also arranged the examinations. No candidate was ever passed for registration who was deficient in the amount and kind of knowledge it was deemed necessary he should possess. These statements can be corroborated by those who are in a position to know, and my assertion as to the place and time of examination will be vouched for by the Worshipful Company of Farriers and those officials who were present. Such unfounded statements as those made by Mr. J. A. W. Dollar when made elsewhere I did not notice, as they and the people who uttered them were beneath contempt; but when they were brought before such a body as the Council of the Royal College of Veterinary Surgeons, then I consider they ought at once to be contradicted and the motives which prompted their utterance condemned. Their object is sufficiently evident to warrant the term 'discreditable' being applied to them; and among gentlemen such a slanderous accusation as 'perpetrating a fraud upon the public,' without a shadow of fact to support it, would justly merit and promptly receive punishment. Such charges were never preferred by members of the Council during my long experience of its business, nor would they have been endorsed by the President; and I may express the hope

that the present Council will not identify itself with such dishonorable conduct. I beg to request that this formal and categorical denial of such a damaging and untruthful accusation may receive the same publicity in the reports of the proceedings of the Council as the accusation has now obtained, and I ask this not only in justice to myself but in common fairness to the Worshipful Company of Farriers, whose efforts to improve the art and position of horse-shoers deserve something better than misrepresentation and detraction from interested people.—I am, dear sir, yours truly,

"GEORGE FLEMING.

"P.S.—I have just reason to complain of the conduct of the President of the Royal College of Veterinary Surgeons, as, if the report is correct, he endorsed Mr. Dollar's slanderous statements in the most marked manner, knowing perfectly well they were absolutely untrue.—G. F."

Mr. J. A. W. DOLLAR.—Mr. President, the letter which has just been read demands, perhaps, some reply from me, and I ought really to be very grateful to Dr. Fleming for bringing this matter up on the present occasion, because I think that I can, with the help of certain documents which I have brought here for quite another purpose, convince you how much foundation there is for Dr. Fleming's statement. And first I should like to say, that when an accusation of slander and falsehood is brought, it behoves the accuser to be a little careful in his own statements; and therefore I would point out that, contrary to Dr. Fleming's assertion, I have never yet accused him of carrying on examinations which were 'a fraud upon the public.' Those were the terms employed by the editor of the *Veterinary Record* in an article published in that journal on July 9th, 1892. I did not make myself responsible for those statements, I merely alluded to them, but did not make them my own at all. That being the case, I should submit to you that there is absolutely no foundation for Dr. Fleming's charge of slander against me; but, lest anyone here present should be doubtful of my opinion upon this point, I would remark that I did then, and I do now, thoroughly endorse every word on that subject which has fallen from the editor of the *Veterinary Record*. The second charge which I have to answer is that I maliciously misrepresented Dr. Fleming as holding examinations in a little underground office at Laurence Pountney Hill, often late at night, and passing and certifying men as competent to work as registered shoeing smiths when, in point of fact, they did not know how to make or put on a shoe. Well, gentlemen, it is characteristic of my accuser that he should strain at my gnat and swallow his own camel; and, therefore, I am not surprised at the indignation which Dr. Fleming manifests at my statement that the examinations were conducted in a little back office underground. In point of fact the little back office was not underground, although, perhaps, it would have been better adapted to the shady transactions which took place in it if it had been. But you will note that though Dr. Fleming vehemently denies that the little back office was underground, he does not deny that he examined men late at night without a forge or horses, and the appurtances of a shoeing smith's business; and that he passed and certified such men as being capable of working as registered shoeing smiths. I think Dr. Fleming does wisely in not denying those statements, because I hold here in my hand a certificate stating that a certain individual was 'this day entered

upon the register of the Worshipful Company of Farriers as duly qualified to work as a registered shoeing smith, in accordance with the rules and regulations of the Worshipful Company of Farriers,' whereas this individual has never made or put on a shoe in his life, and this certificate is signed by George Fleming. If Dr. Fleming will prove to me that he never examined this individual, if he will prove that this certificate and its signature are not his, then I shall be very ready to offer him my humblest apologies; but assuming the genuineness of this document, I think it scarcely strengthens Dr. Fleming's position that the company very shortly discontinued his examination, and have since accepted his resignation.

The *Chairman.*—Now, gentlemen, I must say a word about the postscript. It does not gall my shoulders one bit. I make every allowance for Dr. Fleming. He has been jumped upon pretty severely. I quite forgive him for jumping upon me in turn. It is a remarkable thing that in the report to which Dr. Fleming refers, I find I contradicted Mr. Dollar—not too civilly—five times, and only agreed with him once, and that was as to the correctness of a quotation from some writing of mine. Dr. Fleming must have incorrectly understood my remark. I never accused Dr. Fleming of having conducted a fraudulent examination. What I did say was that the Worshipful Company of Farriers at that time conducted an examination which was a fraud on the public. My remark was quite impersonal. With that explanation I am glad to let the matter drop. Of course it is open to any gentleman to make any comments.

Presentations to Library and Museum.

The *Secretary* announced the presentation to the library of various works: *The Journal of Comparative Pathology* by Prof. McFadyean; a new work on 'Veterinary Therapeutics' by Mr. W. Hoare; the Calendar of the Royal College of Surgeons. The Russian Veterinary Medical Society sent a report of their proceedings in the French language. The Pharmaceutical Society presented the museum with a calculus believed to have belonged to Dr. Pareira.

On the motion of *Mr. Wragg*, seconded by *Mr. Faulkner*, the Secretary was directed to write to the respective donors thanking them for their gifts.

Registration Committee.

In the absence through illness of Mr. Jas. Simpson, the chairman of this committee, Mr. Thatcher, the solicitor, presented the committee's report, according to which the committee had considered 50 cases, of which 18 were raised under section 17 of the Veterinary Surgeons Act. There were 19 charges of unprofessional conduct by advertising, and 4 of unprofessional conduct generally. Prosecutions were recommended in various cases.

On the motion of *Mr. Faulkner*, seconded by *Prof. Penberthy*, the report was adopted, and the prosecutions recommended were authorised.

Mr. Abson moved, and *Mr. Lawson* seconded, that the name of Mr. James Coulson be removed from the Register, because of a series of offences under section 6 of the Veterinary Surgeons Act.

This was agreed to unanimously.

The Examination Committee.

This committee reported that they had held four meetings, and, in accordance with their instructions, they considered the letters

from the examiners having reference to the purchase of instruments and models. At a further meeting of the committee the subject of marks at the examination was brought forward, and the committee recommended—(1) That the Council approve of 40 per cent. as the minimum of marks for a pass. (2) That students who were rejected in the examination in December last shall not in future examinations be required to undergo an examination in zoology.

Mr. Mulvey formally moved, and *Mr. Trigger* seconded, the adoption of this report.

Professor W. O. Williams.—I beg to suggest as an amendment that there be added to this report that it also includes those students who at Christmas last were eligible, but did not present themselves for examination.

Professor McFadyean.—I second Professor Williams's motion because I understand that there were certain students who, from some cause other probably than their own fault, did not present themselves at the examination last month; and I think it is rather hard that they should not have the advantage of the concession. I may say that no student of my own is affected.

Mr. Mulvey explained that personally he dissented from the latter part of the committee's recommendation. When the students entered before January, 1893, they knew full well that zoology was included in their curriculum. If they escaped being examined in that subject at the last examination he did not see why they should be exempt from such examinations in the future.

Mr. Lawson said that as Mr. Mulvey objected to one clause in the report, he (Mr. Lawson) would, to facilitate business, move the adoption of the report in lieu of Mr. Mulvey.

Professor Edgar observed that their bye-laws distinctly laid down that the minimum number of marks for a pass should be forty-five, and no committee's recommendation that the minimum should be forty could override this. In order to alter the minimum the bye-law must be altered, and this would necessitate a three months' notice.

The *Chairman* said that if the bye-laws as amended were carried that evening by the special meeting, then 45 per cent. would be the minimum for a pass. Even then the Council could alter the bye-laws by giving three months' notice.

Professor Williams.—I have moved an amendment.

The *Chairman.*—"That the students at the May examination who ought to pass in zoology be permitted not to do so." (Laughter.)

Prof. Williams.—That is not it. My amendment is "that the students rejected at Christmas and those eligible at Christmas, when examined in May, shall not be examined in zoology.

Mr. Trigger.—If you adopt the report you will give to students at the May examination an opportunity of missing zoology. Do you propose to exclude any student who, from illness or any other unavoidable cause, was unable to pass at the last examination, from having the same privilege as a man who was rejected?

Mr. Elphick protested against loosening their regulations to suit the convenience of any students.

Prof. Penberthy said that if that Council had itself never made any mistake, and was perfectly cognizant that it had made everything clear, then he should support Mr. Elphick. But he (Prof. Penberthy) thought they were bound to recognise the fact that that Council had not always been correct. He agreed with Prof. Edgar

that when they had made a clear bye-law they should stick to it, and not allow themselves to be bamboozled by students. But he thought that they must admit that there had been a great revolution, and they had not made themselves very clear.

The amendment, which was then put, was as follows:—"That class A students rejected at Christmas, 1894, and those class A students who were eligible but did not present themselves, shall not in May next be examined in zoology."

There were eight votes for the amendment and twelve against. It was consequently lost.

The substantive motion was then put—"That all students in class A presenting themselves for examination in May next shall be required to pass the curriculum as printed."

Prof. McFadyean.—Is it quite clear that this is the opposite of the recommendation of the committee?

The *Chairman.*—Quite clear.

There were thirteen votes for the motion and six against. It was consequently carried.

Prof. Edgar moved that the minimum percentage of marks for a pass be forty-five instead of forty as recommended by the committee. Unless this alteration were made they would be brought into direct conflict with the bye-law they had already carried, and which only awaited confirmation.

In the result *Mr. Trigger* moved, and *Mr. Lawson* seconded, as an amendment—"That the whole report be referred back to the Examination Committee, with an intimation that the Council consider that forty-five should remain the minimum marks for a pass."

This was adopted with but one dissentient.

Finance.

Mr. Trigger moved the adoption of the report of the Finance Committee, which stated that there was a balance at the bankers of £688 18*s.* 3*d.*

The report was adopted.

The Steel Memorial.

The Steel Memorial Committee reported that a die for a gold medal would cost £30, and £6 for each medal issued. Such medal would have no special design except the College arms and perhaps a wreath. To obtain a medallion portrait of Mr. J. H. Steel the die would cost £70, and the medal would cost according to the metal used. In bronze large medals could be had for about one guinea each. In gold the medal would only be an inch and a half in diameter for £6. The committee recommended the Council to consider whether gold or bronze should be chosen. The fund was not sufficient to pay for a gold medal and portrait medallion.

The *Chairman*, who moved the adoption of the report, said he should be happy to give any further explanation that was required as to the report. He might state that the question was one between a plain gold medal and a bronze with medallion. If they wanted a medallion portrait of Steel they could not get it done by a good sculptor under £60 or £70. If they desired to have this, they would not have sufficient money left to produce a £6 or £7 gold medal. They could have a bronze medallion, and then they could afford to give a medal every year. The question, then, was between a gold medal with a plain inscription or the College arms, and a bronze medal with medallion portrait. The Council had, it must be remembered, originally desired that the medal should be of gold.

Mr. Trigger.—I move—"That the Steel medal be bronze, and that it have as its design on one side a medallion portrait of John Henry Steel, and that the committee be empowered to have it executed."

Prof. McCall seconded the motion, which was carried unanimously.

The Publication Committee.—The Minutes of Proceedings.

The Publication Committee recommended that a full report of the proceedings of Council should be taken by a shorthand writer, and that his transcript should be used by the secretary in preparing his minutes, and then kept for reference. The committee were of opinion that it was not advisable for the Council to publish its proceedings, but that each professional journal should be allowed to send its own shorthand reporter to the meetings of the Council. In the event of the Council agreeing to this, the committee recommended that an intimation to this effect be made to the editors of the professional journals.

Mr. Fraser moved the adoption of the report, which was seconded.

Sir F. Fitzwygram suggested that the Council's shorthand writer should make a transcript of his notes, to be sent to one of the professional papers conditionally that that paper had it set up in type and supplied copies to the other veterinary journals.

Prof. McFadyean.—To meet the suggestion, I move that our shorthand writer's transcript be offered to the editor of the *Veterinary Record* to make use of conditionally that he set it up in type for his own paper and supply proofs within a week to the editors of the other professional journals.

Mr. Trigger.—It seems to me that this arrangement would do away with the liberty of the press altogether. If it were adopted, and the journals did not send their own reporters to our meetings, they would be dependent upon a report supplied by this Council.

Prof. McFadyean.—They may send their own reporters if they like. We simply offer to save them the expense of providing a reporter.

Sir F. Fitzwygram.—And when they get our official report they may cut it up as it suits them.

Mr. Dollar.—This question was under discussion six months ago, and we found that if we used the shorthand writer's transcript as the minutes of our proceedings, it would take us two hours in hearing them read prior to confirmation. I should not myself approve of any minutes which were first edited by the President or Secretary. I think with Mr. Trigger that it is very necessary the liberty of the press should not be interfered with, nor a bribe be offered to the conductors of the professional journals to abstain from giving an absolutely free and unbiassed report. (Hear, hear.)

Prof. McFadyean.—In view of the adverse expression of opinion I will, as my amendment has not been seconded, withdraw it.

Prof. Williams.—I move, in accordance with Sir F. Fitzwygram's suggestion, that the minutes be copied from the shorthand writer's transcript, and sent to the professional journals for publication.

Mr. Abson.—I venture to think that all this discussion is quite unnecessary. Already the meetings of our Council are reported, and I think the reports which appear are very satisfactory. (Hear, hear.)

The amendment moved by Prof. Williams, and seconded by Sir F. Fitzwygram, ran—"That the shorthand reporter acting for the

College send a transcript of his notes to each of the veterinary journals."

For this amendment there were only two votes. The original motion for the adoption of the report was then put and carried.

The Last Examination.

Lengthy reports and some correspondence were read relating to the December examination, Mr. Rutherford, the Scotch secretary, stating that at their written examinations everything passed off satisfactorily at Glasgow and also at Edinburgh. They had, however, to enforce the regulations in the case of two students who arrived at fifteen minutes past ten in the morning, and when the examination was in full progress. They were not permitted to enter, and were recommended to write to the Council if they felt aggrieved. The oral examinations, with one exception, passed off without a hitch. The exception was a complaint that on the last day some students had not their full time at one table.

The *Secretary* (*Mr. Hill*) read a list of the successful passes in England and Scotland.

Mr. Mulvey.—May we have the examiners' marks before us, the record sheet of the examination?

The *Chairman.*—I am entirely in the hands of the Council; I think it is very unusual, but they can be produced if demanded.

Mr. Mulvey.—My reason for asking for their production is that I think there were mistakes made in awarding the marks. I find that in certain cases honours have been withheld from students who were entitled to them according to the marks awarded by the examiners. For instance, in one case a student who obtained 63 marks had no honours awarded him, while another student who only obtained 40 marks was passed as "sufficient."

Mr. Mulvey moved, and Professor Penberthy seconded, "that the examiners' marking sheets be produced."

This was carried by 10 to 5.

The *Chairman* (having looked at the sheets).—Quite right. In class B a student (No. 30) has no honours given him, and yet he has 63 marks—three over the necessary number entitling him to honours.

Prof. Penberthy.—There will be no great hardship done. It is clear that a mistake has been made.

Mr. Mulvey.—In the other case, a student who received 40 marks is passed as "sufficient."

The *Chairman.*—He has only got 40 according to the sheet, and yet is passed. I wrote to the Chairman of the Board of Examiners, calling his attention to this, and the explanation was that a mistake had been made in the figures—the marks in one set should have been 20 instead of 15, which would bring up the required number of marks.

Mr. Mulvey.—Something has been said about the examiners not using the marks we have ordered. Can you tell us how the practical examiners marked?

The *Chairman.*—They have not marked by numbers, but continued in the old way, using the terms "bad," "sufficient," and so forth.

Professor McFadyean.—At the present time we have no rule.

The *Chairman.*—If we allow this to pass unnoticed our examiners will, next May, act quite independently.

Professor Edgar.—We have now no control over the examiners, as

their term of appointment has ended; but nevertheless I would move that we place on record our disapproval of examiners failing to observe the injunctions of this Council with regard to marking.

Mr. Mulvey seconded the motion.

Mr. Trigger.—I don't think that we need go so far as that. Let our Secretary write to the examiners for an explanation.

The *Chairman.*—It is a distinct departure from our instructions.

Mr. Faulkner proposed, as an amendment, that the Secretary write to the examiners, asking them why they had not conformed with the regulations of the Council.

Mr. Mason.—I second the amendment. I think there may be some reason why they did not carry out our wishes.

The amendment was carried.

The *Chairman.*—There is the complaint that the examiners in one class reduced the time from fifteen minutes to eight.

Professor Williams stated that a number of the students in Edinburgh complained that they were called into the examination room a quarter of an hour before the time appointed for commencing the examination; and that they were not called in proper order, but were called in as they were got hold of. A man who presented himself at ten o'clock was called at eleven. Another complaint was that the time allowed for the examination was too short. He (Professor Williams) complained to Mr. Rutherford about this, and it was ultimately decided that that gentleman should officially report the matter to the Council. Mr. Thompson, the Council's delegate present, took notice of the time as well as the commissionaire, and the former would be able to tell the Council the exact time.

The *Chairman* said that Mr. Rutherford's report was that "whereas on the last day of examination the last four lots of candidates, instead of being examined forty-five minutes, were examined only thirty-five minutes, the form of work was thus shortened altogether by thirty minutes. Unfortunately all but one of these men were rejected. I had heard rumours, and received one protest against the examination," and so on.

Mr. Thompson, the Council's delegate attending the examination at Edinburgh, said that he went into the A room as the examination was just finishing; that was at half-past twelve, and he remained there until a quarter past one. The commissionaire admitting the students supplied him (Mr. Thompson) with a list of the times, according to which the examiners in this class commenced with the first lot of students at 9.45 and finished at 10.30, that was 45 minutes; the second lot began at 10.30 and left at 11.5, that was 35 minutes; the third lot began at 11.5 and left at 11.40, and no time was allowed for changing the table; the fourth lot commenced at 11.40 and left at 12.15; and the last lot began at 12.15 and left at 12.50. As far as he could recollect all was totalled up and recorded by twenty minutes past one. Fifteen students were examined from 9.45 to 12.50. The first lot had 45 minutes and the next only 35.

Professor Williams.—One of the examiners had to catch his train.

The *Chairman.*—If the curtailment of time had happened the first day, it could not have borne the construction it is liable to. Of course we may anticipate the reply that these students were so bad that there was no earthly necessity to go on examining them.

Mr. Elphick.—I think an injustice was done to the students,

because if the examiners had continued they might have discovered that they were proficient in other things.

Professor Penberthy thought they were entitled to ask for an explanation.

On the motion of *Mr. Trigger*, seconded by *Mr. Faulkner*, it was decided that the reports of the examiners and all papers connected with the last examination be referred to the examination committee for consideration and report.

The Fellowship Degree.

A report from *Dr. George Fleming*, chairman of the Board of Examiners in connection with the fellowship degree, stated that one candidate in London and two in Edinburgh had succeeded in obtaining this degree. The names of the successful candidates were Professor E. de Jong, Mr. John R. Green, and Mr. Watkin S. Pitchford.

The Next Examinations.

Professor Williams, in moving "That the dates of the next examination be now fixed," said that his most important reason for introducing this motion was that the teachers might know exactly the length of time they had before them in which to teach. Further, it was desirable that the students should know how to regulate their work.

Mr. Trigger seconded the motion.

Professor McFadyean pointed out that the dates of the next examination would be largely dependent upon the time fixed for opening the schools. He moved that the written examination be held on Monday, the 13th of May next.

Mr, Elphick.—Let us try to fix that examination at an earlier date, and have a longer interval between the written and oral examinations. Let there be sufficient time allowed to enable the examiners to look over the written papers before the oral examination begins. I do not think it would make much difference to the students if the written examination took place a week earlier.

Professor McFadyean.—I think it is an unfortunate thing to keep the students in suspense between the written and oral examination,

The motion was altered to a recommendation on the part of the Council that the next written examination should be held on Monday, 13th May next; and in this form it was adopted.

Grant to the British Institute of Preventive Medicine.

Professor Edgar now moved, in accordance with notice previously given—"That a sum of £300 be offered to the British Institute of Preventive Medicine for the establishment of a veterinary laboratory in which work may be done for the advancement of veterinary science by veterinarians." He said, "Whatever difference of opinion may exist at this Council as to the advisability of making a grant to the British Institute of Preventive Medicine, I venture to think that we shall be unanimous in our opinion that it is quite time we arrived at some conclusion in the matter. (Hear, hear.) The subject has been brought before us in a direct and indirect way now for nearly two years, and it behoves us as representing the veterinary profession in this country either now to determine what grant we will make to this Institute, or to say that we do not consider it is worthy of our support. I think that every scientific man will arrive at one conclusion, namely, that this Institute is calculated to

advance that which we have very near at heart. If that be so, we must necessarily allow to follow the other conclusion, namely, that the Institute is worthy of the support of our profession. The next point, and probably the most important one, is with reference to the amount of the grant that we should make. I think with that one dissentient voice the Council agreed practically—although not in the matter of the precise sum—that we should make some grant to this Institute. Now the question is, what sum we should consider as worthily representing our interests in this Institution. I have this time advisedly modified the sum, reducing it from £500 to £300, in order to make a kind of compromise to disarm criticism. I think the motion proposed on a previous occasion by Mr. Abson that the sum be £250 did not evoke much opposition, and I am further supported in this by the line of action taken in some of our medical societies throughout the country. I note the action which has been taken by one of the most powerful and influential of those societies, the Lancashire V.M.A., which has offered to give £50 if this Council grants £500, and £25 if we decide to make a lesser grant. That fact is a clear indication to me that the majority of the members of the Lancashire Association are in favour of our granting £500, and I do not consider it a large sum of money for us to expend. We have at present about £7000 invested in the funds. All I ask is that out of this we make a grant of £300, which will not bring us $2\frac{3}{4}$ per cent., but will be invested in an institution that at a moderate computation will bring our successors—if not ourselves—two thousand per cent.: will yield a result which we cannot measure in money value. I state, without any fear of contradiction whatever, that we could not, with any feeling of dignity, at all offer to this Institute on the conditions which I have proposed less than £300. This will probably be supplemented by a handsome sum from various medical associations which will together form a good nucleus for establishing a veterinary laboratory at this Institute. The next point is, is there any existing agency doing a work having a prior or stronger claim upon the funds of this College? I learnt quite recently—so recently only as the last issue of the *Veterinary Record*—that post-graduate work—original research — could be conducted at the Royal Veterinary College, Camden Town, by other than graduates. The work carried on in the research laboratory at the Camden Town School is, I believe, largely owing to the munificence of the Royal Agricultural Society, if indeed it is not entirely carried on at that society's expense. They have provided a large sum to assist in fitting up a laboratory there, and they make an annual grant to aid in carrying it on. I do not know how far you will think it consistent with the dignity of this profession to avail yourselves of a laboratory that has been and is largely provided by another society. It appears to me that in doing so you would sacrifice your independence. The question has been raised whether this College could make a grant, or in any way assist one teaching institution, without assisting others. I do not quite see the logic of that argument, but at the same time I think that this Council would have to be exceedingly guarded how it gave support to one veterinary school without rendering support to all the veterinary schools. Although we might not act illogically in doing so, yet it would not, in my opinion, be a prudent procedure; and if we can gain any advantage by offering this sum to the British Institute of Preventive Medicine, if by

doing so we can establish a department in which veterinary surgeons will be able to pursue original research unfettered and untrammelled in any way by private institutions, I think the money will be well invested. If you decide to give this sum which I propose to the British Institute of Preventive Medicine, are you satisfied with the conditions upon which I have suggested it should be offered? I do not propose these conditions with any great partiality for them. Personally I should be in favour of making the grant unconditionally. I think if we gave £300 to this Institute absolutely unconditionally it would be money well expended. Probably it is safeguarding the right use of our funds to provide that we should be in some way thought of hereafter; that we should be enabled to pursue our work at the Institute with the feeling that we had there a home of our own. It is said that perhaps not 10 per cent. of the members of our profession are in a position to devote their time and attention to original research. If only one in a hundred is in a position to do so, I hold that it is well they should have the opportunity. I do not undervalue the magnificent work done at the laboratory at Camden School. I say all honour to the man who pioneered the work there, and who has raised the veterinary profession to a position of scientific eminence in this matter. All honour to Professor McFadyean, but I do not see why we should not have two or three Professor McFadyeans in the country instead of one. I do not think we should set up a rivalry to the existing institution by affording opportunities for carrying on our work independently of that institution. On these grounds I move my resolution. (Applause)

Mr. A. Lawson.—I have great pleasure in seconding Professor Edgar's resolution. I think he has been very modest in his demand. It is quite true that this matter came before the Lancashire Association a few weeks ago, and there was then an unanimous feeling that if this Council voted £500, they would give £50. Now that Professor Edgar has reduced his figure I do not know what the feeling of the Lancashire Association may be, but I hope they will be prepared to contribute from £25 to £30. Personally I would prefer to give the £50. That offer was made with a view of inducing the Council to be a little more liberal than perhaps otherwise they might be inclined to be.

Professor McFadyean.—I should like to say a few words in reference to this matter. Professor Edgar, in his opening remarks, said that there was only one dissentient voice raised on the last occasion to the proposal of Mr. Abson that we should give £250 towards the British Institute of Preventive Medicine. I should like to explain the circumstances under which I proposed that we should give nothing. The meeting had expressed its willingness to contribute the sum of £50, whereupon the chairman said he would rather than that this small sum should be voted, that the Council should decide to give nothing. To meet his views I moved that we should give nothing. With reference to opportunities for conducting private research which exist at the Royal Veterinary College, I would point out that Professor Edgar has unwittingly confused two things which ought to be kept distinct. It may come upon him as a surprise to know that post-graduates do conduct private research in the laboratory existing at the Royal Veterinary College. He said that he had been under the impression that hitherto post-graduates who desired to acquire a knowledge of bacteriology had to study at

King's College. Do I understand him to say that graduates have been conducting private research at King's College, and do I understand that this amount is to be given to the British Institute to promote it as a teaching institution? He spoke about it as a place in which researches might be conducted perfectly independently. I should like it to be made clear whether we are to give this money to the British Institute towards founding a laboratory in which any graduate may, untrammelled, conduct private research, or towards promoting an institution that is to teach bacteriology? Then Professor Edgar said that it was quite true that only a small percentage of the profession wished to study bacteriology and pathology; but if only 1 per cent. wished to do so, he was prepared to afford the requisite facilities. Well, I would like to ask Professor Edgar if he knows of a single veterinary surgeon who has a desire to conduct a private research, and is yet unable to do so because he cannot find a laboratory available in which to pursue his studies. I have already elsewhere expressed my views on this subject. If there were a large demand, or many members of the profession anxious to pursue the study of pathology and bacteriology, and could not already find places in which to practise, then I think Professor Edgar's would be an acceptable proposal. But, in the circumstances, I am of opinion that there are many other things which have prior claims upon our generosity than this.

The *Chairman.*—I thought, of course, that when Professor McFadyean rose to speak he was going to propose an amendment, otherwise I should have objected to his speaking.

Professor McFadyean.—Is that really a condition of yours as chairman, that there should be no discussion on this subject? I did not speak before, and I do not intend to speak again. Am I not to be allowed to make an observation for or against the motion?

The *Chairman.*—The custom or order of speaking is that the first speaker who follows the proposer and seconder of a motion shall move an amendment.

Mr. Wragg.—I can assure you that my sympathies are quite with the good work that is proposed to be done by the British Institute of Preventive Medicine, but I cannot allow my sympathies to override my opinion as to whether this College can afford to give so large a sum as £300 at this moment out of its funds. Professor Edgar says that we do not wish to be regarded as a money-grubbing institution. Well, I think we can hardly be described as a money-grubbing institution, seeing that after fifty-one years this College has only a paltry reserve fund of £7500 and a balance at our bankers to enable us to carry on the business of the College. We are asked to give £300 to this Institute, or a twenty-fifth part of our reserve fund. I think we are just in this position now, that we ought to be very careful with our funds, for we have the four years system of examination coming on, and we are told by all the schools that the entries of students are less than they have been for some years; and if the entries in the schools are less the students presenting themselves for examination must necessarily be less also, and our income will certainly be smaller. I beg to move as an amendment that we give £100 to the British Institute of Preventive Medicine unconditionally.

Mr. Trigger.—In the absence of Mr. James Simpson, who was to have moved a grant of £50, I venture to take upon myself the responsibility of seconding Mr. Wragg's amendment that we give

£100 without any conditions at all. In the first place I think that £300 is a very moderate sum to offer when we impose conditions upon its acceptance. I think we had much better give what we can afford, namely £100, and without attaching any conditions whatever to our gift. You cannot purchase a position for the sum which the original motion offers; and really it appears to me to be presumptuous on our part to ask the British Institute to give us a position for £300. As Mr. Edgar has modified the sum of £500, I think I am acting in a liberal spirit when I second the amendment that we give £100 unconditionally, and with our good-will and heartiest wishes for the success of this institution.

Mr. Abson.—I think we should stick to our motion at the last meeting, that we should give the sum of £250. That I think is rather a more level sum than £300. I think it is most important that we should identify ourselves with the British Institute of Preventive Medicine. It bids fair to be a rival to any similar institution. Valuable work will be carried on there, veterinary as well as medical work; in fact, I think the two professions will have to work hand in hand there. There are many diseases, we know, that affect the lower animals and man alike, and the two branches must go together.

Mr. J. A. W. Dollar.—In considering this question I have been guided by the manner in which our having a veterinary laboratory at this Institute will act. The difficulty, I take it, under which we labour is not that we have not already sufficient places in which to work, but that, unfortunately, members of our profession are not rich enough to enable them to devote themselves for one or more years to the work of private research to the disadvantage of their practice. Had any endowments been promised by the British Institute, for which our profession would have the chance of competing, I should have been most delighted to support the proposition of Professor Edgar that the sum of £300—or even £500—should be given. In that case I think we should have had a substantial return for our money, and that the first necessity for original work being carried on would have been fulfilled. But that seems not to be so. Another point which appears to have been overlooked is that, although bacteriology at the present time is much thought of, it is not the sole means by which we may expect to make advances; and I take it that in voting away money we should consider how best to advance the interests of the profession over whose welfare we preside. It may be that in the future other schemes for the advance of clinical observation or some other branch of our profession may be brought before us. If, then, at the present time we make a very large grant to this Institute, we shall be in danger of crippling our funds. I think also that we should not lose sight of the fact that, owing to the poverty of our graduates, we may bring on ourselves very serious discredit—in fact, bring ourselves into ridicule and contempt—if after an extensive laboratory is established at this Institute by an act of generosity on its part, it is found that there is a scarcity of veterinary surgeons in a position to devote themselves for two or three years to this work. In that case our veterinary laboratory would stand in considerable danger of being left empty; and I think, after making propositions scarcely distinguished for their modesty, it would ill become us to have no one working there. For these reasons I support the amendment.

The *Chairman.*—I may say that there are here a number of letters from local societies, the Lancashire, the Eastern Counties, and the Lincolnshire, all promising donations towards the Institute supplementary to any grant the Council of this College may make. Other societies write to say that, although they cordially approve of the scheme, they have no funds to give. I have, too, a letter from Dr. Ruffer, the principal of the Institute, in which he says there will be a veterinary laboratory attached to the Institute; that it was always proposed to have such a place; that it is in the plans and is now being built. He hopes that the veterinary profession will co-operate with the Institute in this matter, but even without their co-operation the work will proceed. He, however, adds that they would much prefer to have the co-operation of the profession officially. I do not think I need trouble you with any remarks on the question after what Mr. Edgar has said.

Mr. Abson.—After Dr. Ruffer's letter I withdraw my amendment in favour of Mr. Edgar's motion.

Thirteen voted for the amendment and six against.

Professor Williams.—We can give £100 every year, or at other times.

The *Chairman.*—Of course, and I hope we shall do so.

A Proposed Scholarship.

Professor Penberthy moved—"That a sum not less than £50 be granted from the funds of the Royal College of Veterinary Surgeons to provide for a scholarship to be given to a graduate, such sum to be expended in study at some foreign veterinary school or schools. That the award of the scholarship and conditions under which it is held be decided by the Council."

The *Chairman.*—Do I understand you that you only propose that one sum of £50 be granted, or that we should vote that sum annually?

Professor Penberthy.—This one year. We can make a fresh grant if we find the experiment successful. At present we do not (if we carry this resolution) bind ourselves to more than one sum. I have been told by some that the amount of money I propose is considerable, while others are of opinion that it is inconsiderable. We have just granted to an Institute £100 of our funds. My view in moving this resolution is to encourage study abroad. In this tight little island, though we sometimes think we have the best veterinary surgeons in the world, we can hardly claim that we have the whole veterinary knowledge. The advantage in studying abroad would be that clinical medicine, as well as bacteriology, could be studied. The result would have to be reported to the Council as a condition of the acceptance of the grant, and thus not only would the individual receiving the grant be benefited by the foreign course he obtained, but the whole profession would gain an advantage from the sum thus expended. We are told that there are not many men in our profession capable of carrying out original bacteriological research, but I do not know that that opinion is correct. I feel that the sum I propose is a small one to ask for. Anyone gaining it would have to possess some knowledge of Continental languages, and it would thus be an encouragement to proficiency on the part of our students or of younger members of the profession.

Professor McCall seconded the proposition.

Mr. Kidd opposed the motion, remarking that at the last meet-

ing a resolution was adopted with a view of founding a bursary or scholarship in connection with the jubilee of that College, a scheme which he hoped would succeed. It was surely not creditable to them that they should vote—or be asked to vote—a sum of £50 in order that one might go abroad to get his professional education and return to this country with the brand "Made in Germany." His conviction was that post-graduates could obtain all the education it was desirable for them to have without going abroad to seek it.

Prof. Williams, in supporting the motion, drew Mr. Kidd's attention to a fact which, he said, he did not seem to know, namely, that on the Continent veterinary schools were endowed with very large sums of money by Government, and they possessed in consequence appliances of which the British schools were destitute. Hence veterinary surgeons on the Continent had opportunities of being more highly educated than their brethren in Great Britain. Moreover at present the number of men in the profession at home capable of being examiners was so limited, that they should seek by all means in their power to increase that number by qualifying men to become examiners.

Prof. McFadyean.—I should like in a single sentence to support the motion, and to say that I regret to see that the spirit of insular prejudice, which has kept the profession in this country in a backward state for fifty years, is not dead yet.

Prof. Edgar.—I shall support Prof. Penberthy's proposition, if only to establish the logical position I took up just now in inviting you to grant £300 to such a noble institution as the British Institute of Preventive Medicine.

The *Chairman.*—I wish to say a few words on this subject too, for I do not think that I ever saw in my life a better illustration of the prejudices and interests of men than that which has been afforded during the last quarter of an hour in this room. Prof. McFadyean refers to insular prejudice. Is it insular prejudice on our part to wish to have a place in, and to ally ourselves with a great scientific institution in this country, and to withhold a grant to send a man abroad chiefly for the clinical instruction he can get there? Why, if there is one thing in this world in which we surpass all Continental veterinary surgeons, it is in our clinical work. It is only in pathological and bacteriological knowledge that we are their inferiors. We are to send a man abroad for the knowledge he will get from the foreign cliniques. The whole thing is preposterous. When £300 is required for a national scheme we say we have not the money, or cannot afford to part with the money, and yet in the next breath we are asked for £50 to send a man abroad for the purpose I have named. The supporters dare not ask for an annual grant of that sum, but limit their proposal to one year, knowing that only as an annual grant could it be of any value.

Prof. Penberthy remarked that he intended to say that the course of study he proposed would fit a man to carry out bacteriological research at the British Institute of Preventive Medicine to which they had just granted £100, and to which he hoped that next year they would be able to grant another £100. The idea of establishing bursaries for Continental study was not a new idea, or one which had its origin in any proposal to aid the British Institute of Preventive Medicine. The question has been referred to by the *Veterinarian*, and was mooted long before the Institute named was thought of.

There were five for the motion and nine against it.

Several notices of motion were given, and a vote of thanks to the President closed the proceedings.—*Veterinary Record.*

THE CENTRAL VETERINARY MEDICAL SOCIETY.

THE usual monthly meeting of this Society was held at the Royal College of Veterinary Surgeons, 10, Red Lion Square, Bloomsbury, on Thursday, the 3rd inst., Mr. Sidney Villar, the president, occupying the chair. The other Fellows present were Messrs. N. Almond, Vet.-Capt. R. Butler, Ulysses Carr, C. H. Cordy, J. A. W. Dollar, C. R. Edmunds, H. Edgar, A. E. Gostling, Vet. Major B. Glover, T. C. Garry, Prof. F. Hobday, J. Sutcliffe Hurndall, W. Hunting, F. C. Mahon (*Hon. Sec.*), Prof. Macqueen, Joseph H. Manton, W. J. Mulvey, Prof. Penberthy, A. Prudames, W. Roots, J. Rowe (*Hon. Treas.*), G. Reddish, F. Samson, W. Stapley, W. H. Williamson; and as visitors, Morgan Evans, W. H. Mulvey, jun., E. R. Sherren, and W. E. Taylor.

On the motion of *Mr. Prudames,* seconded by *Mr. H. Edgar,* the minutes of the preceding meeting were taken as read, and were confirmed.

The *Hon. Sec.* read communications which he had received from gentlemen who were unable to attend, including Major Longhurst, of Aldershot, Mr. J. Roalfe Cox, and Mr. H. M. Singleton.

THE LATE PROFESSOR WALLEY.

The *Chairman.*—Since our last meeting this Society has lost by death one of the most distinguished of our Fellows. The late Professor Walley had for a long time—considering the distance he lived from London—been quite an active member of this Society. He was frequently in correspondence with our secretaries on the current topics of our Society, and he read papers and took part in our discussions on several occasions. Several years ago he was elected an honorary member of this Society. Not only have we cause to mourn the loss of Professor Walley as a member of this Society, but also as a distinguished member of our profession. Few men worked harder or have done more for the profession than he. I am sure it is the wish of this Society that we should send an expression of our sympathy with the friends of the deceased professor in the bereavement they have sustained. I move, therefore, "That our Secretary convey to Mrs. Walley and family the expression of our sincere sympathy with them in their sad bereavement."

Mr. Rowe, in seconding the motion, told how, more than thirty years ago, when his father was one of the examiners of essays at the Camden Town School, the latter brought home with him an essay by one of the pupils and bade him read it, adding, "The author of that essay will make his mark in the world." The writer of the essay was Professor Walley, and his (Mr. Rowe's father's) foresight had been fully justified. The subject of the essay was pleuro-pneumonia, and it was written in 1864, four years before he (Mr. Rowe) entered the College himself. Twelve months ago, while seated at dinner with Professor Walley, the talk turned on pleuro-pneumonia, and then he mentioned to him that he had this old essay of his. Meanwhile the Professor had wondered what had

become of it. He took it back to read, and then returned it to him with a kind note which he (Mr. Rowe) should ever treasure.

The motion was adopted *nem. con.*

New Honorary Fellows.

The *Chairman.*—The Council unanimously decided to recommend the following gentlemen as Hon. Fellows of this Society :—Colonel F. Duck, A.V.D., Captain F. Raymond, A.V.D., and Mr. H. G. Rogers, M.R.C.V.S., of Brompton Road. Colonel Duck, as they were aware, had been an active member of that Society for some years. The services to the Society of Captain Raymond were, too, well known, as were also the services of the late hon. sec., Mr. H. G. Rogers.

A ballot resulted in the unanimous election of the three gentlemen named.

Nominations.

Mr. Robert Porch, M.R C.V.S., 9, Grosvenor Road, S.W., was duly nominated as a Fellow of the Society by Messrs. Hunting, Macqueen, and Penberthy ; and Mr. W. E. Taylor, M.R.C.V.S., of the same address, was similarly nominated by Messrs. Hunting, J. A. W. Dollar, and Captain Butler.

Morbid Specimens.

Mr. H. Edgar submitted for inspection two specimens showing injuries inflicted by foreign bodies—French nails—in the second stomach of cows. In the first instance, he explained, the stomach was punctured, the nail was right through the stomach; and in the second case the nail was in the mucous membrane. In previous similar cases he had never known the animals exhibit such a class of symptoms as these two cows showed, and the course run so very rapid. In the first case he was called in about half-past nine in the morning, and was informed that the cow was taken ill about four or five the previous evening. He found her lying on her side in a comatose condition. His diagnosis of the case was dysentery. She was wholly paralysed, with congestion of the brain; and it was only on the second day that his suspicions were aroused that a foreign body was present, and upon the animal being killed he found the nail right through the whole of the stomach. The cow was got into a sitting position. After he saw her she recovered consciousness and sat up of her own accord. She drank several gallons of gruel. She seemed to be progressing favorably towards recovery, although there was a very slight action of the bowels, and no water was passed by the cow except what he took from her. On the second day the cow relapsed, and her owner thought she was likely to die, and preferred to have her killed. Mr. Edgar added that he understood that when the cow was first brought in from grass and tied up in the usual way, she commenced striking out with her hind legs and plunging about the cowshed. The second case was taken at eight o'clock one morning, and he saw the cow an hour afterwards. She was tied up in the shed, and, after some time, was seized with similar symptoms to the other cow, as though mad. She kicked at her stomach tremendously, and finally, just before he saw her, she was down, and never recovered. She lingered until the following day. As he was convinced that there was a foreign body in the stomach, he performed rumenotomy with a view of finding it. There was one point where the animal exhibited great pain. At that point there was a

fractured rib, and he could not distinguish whether the pain was due to the fractured rib or the pressure of a foreign body. When he performed rumenotomy, cutting into the stomach, he passed his hand and felt a fractured rib—an old-standing affair. He searched carefully for a foreign body, but he was unable to detect it; and concluded that it was quite possible it was covered with fat, and was thus beyond detection. The first cow he said had a temperature 99°, which rose to the normal height until the cow's death. The temperature of the second animal was 101°, and when he performed the operation it went up to 104°. Half an hour after the operation the temperature fell to 103°.

The *Chairman*.—We must all agree that these specimens which Mr. Edgar has kindly brought forward are very interesting. I should like to ask him one question in reference to the specimen where a nail is present puncturing the mucous membrane. Did he, on making a *post-mortem* examination, find marked symptoms of inflammation of the mucous membrane or muscular coat of that organ? The reason I ask him is because I have, on very many occasions, found a large quantity of foreign material in the reticulum of cattle, which probably has given rise to no other inconvenience.

Mr. Edgar.—No, nothing at all. One curious point is that a nail lying in that position should produce such complete paralysis, arresting the whole action of the bowels.

The *Chairman* said that what struck him was how to connect the presence of the nail with cerebral disturbance.

Professor Penberthy.—I think these are most interesting specimens, and I am sure I for one should be extremely grateful to Mr. Edgar if he would suggest an explanation of the symptoms of paralysis. Did they arise as the result of this nail lying in the mucous membrane?

Mr. Edgar.—I simply speak to the facts. I find the cow with paralysis. I find her in the condition described. I find a natural pathological change in the mucous membrane of the stomach. Therefore I must leave it to pathologists to determine how the paralysis ensued.

Professor Penberthy.—I appeal to Mr. Edgar as a pathologist.

Mr. Hunting.—I do not quite understand; where is the connection? Do you say there is any connection between the nail and the paralysis, or suggest that there is anything more than a mere coincidence?

Mr. Edgar.—I suggest that the nail was the cause of the paralysis. In my mind there is not a doubt about it.

The discussion then dropped.

The Legal Aspect of Soundness. By Veterinary-Captain R. C. Butler.

In the remarks by which it is my pleasure to introduce the subject for this evening's discussion I shall endeavour to analyse those factors which may enter into questions of soundness when such are brought into a court of law; and although some of them have a much wider bearing than their relation to soundness, we must take them into consideration in order to get a broad view of the whole matter. It has been suggested to me that the subject is somewhat threadbare, and that, as far as we have gone, all that we can know about it is common property; but I cannot hold that to be any reason why we should not occasionally, and with profit, review the well-known facts,

and see if, by consideration and discussion, we may not be able to elicit some fresh opinion which will be for the general good.

The ideal position of the veterinary profession with respect to legal questions relating to soundness is that of professional adviser to the judicial authority, on whom such authority may rely for the explanation of the technical features and pathological details of the case under notice, and for an accurate summary of its professional aspect. Seldom, however, is this state of affairs realised, and it is more frequently the case that a mixed mass of diametrically opposed opinions, which by neutralising each other may be valued at but little, are left for a judge to sift. It is possible to imagine a more satisfactory position for ourselves, but it is one which always must occur and in which we do not stand alone, but which happens daily in all other professions, and notably in the legal itself; and I am inclined to think that in our criticisms of such contradictory statements by our professional brethren we are sometimes apt to take too pessimistic a view of our own shortcomings.

This leads me to speak particularly of *evidence*, and under this heading the saying "So many men, so many opinions," finds ample justification. Let us first fix the object in view in the giving of professional evidence, and I take it that this may be defined as a simple statement of opinion after careful examination. I should wish to emphasise the words "careful" and "simple," and the necessity for so doing may be clearly made manifest by quoting from two recorded cases. In the first of these (Hall *v.* Rogerson, Newcastle Spring Assizes, 1847), a veterinary surgeon, witness as to the relative soundness of a horse's feet, stated that he had noticed a slight convexity of the sole, but thought the defendant justified in warranting the animal sound. Later, however, in cross-examination he admitted that "if he had taken the precaution to see the horse go it might have been different." In the second a professional witness, on observing "that there was a considerable laceration of the integument," was reminded by the judge that if he meant there was a wound he had better say so.

The question of conflicting opinions is the point, however, on which our principal interest regarding evidence naturally centres, and where such opinions are in opposition to general professional observation or knowledge, I do not conceal from myself the fact that all are not equally careful, accurate, or skilful; that, to suppose an extreme case, the intent to deceive may enter the mind even of a veterinary surgeon, and that the dogmatic, self-opinionated expressions which some professional witnesses have occasionally arrogated to themselves are not calculated to increase the weight of their personal testimony, or raise the general opinion of the scientific attainments of their profession. These are all hindrances to our testimony bearing that amount of moral weight which we would fain see it confer, and at present we labour under a still further difficulty in this matter, in that the opinions of certain who have had no scientific education are accepted in courts of law on points which can only be adequately appreciated by those who have undergone the rigorous ordeal of systematic training. Where, however, the duly qualified veterinary practitioner alone is concerned, I am pleased to believe—and I think that consideration will lead others to the same conclusion—that there is observable in recent cases a tendency to the more careful balancing and mental weighing of fact and opinion, and it is only by this means, by increased effort of observation and

thought, by increased application for the attainment of scientific knowledge, that our evidence will hold that position and give that weight which is its due. Differences, and particularly with regard to soundness, will always exist—it is natural; but where experience and care are combined—and by experience I do not mean living a long time—they will be fewer and slighter. From this point it is proper to pass to the consideration of those for and to whom our opinion is offered.

The judge is probably unacquainted with technical details regarding soundness, and is guided in his decision or in his direction to the jury by evidence, the arguments of council, and previous judgments. Should the scientific opinions be in accord his path is clear; but when they differ, or when counsel succeed in placing opposite constructions upon them, he is, like all others, likely to be influenced by the manner or method of a witness, and this affords an additional reason for our attention, simplicity, care, and conciseness. It must not escape us to note the power of the judge in influencing the law of the future, for the law is jealous of its rights—and in this we may see a lesson for ourselves—and will not easily overrule a decision once made by one of their professional brethren. Our evidence should therefore be up to date. At first sight it might seem preferable to have in the judicial chair on questions of soundness one who was acquainted with the veterinary medical aspect of the subject, and so was in a position to more successfully analyse polemic professional evidence; but on consideration I think we should find this a drawback, and would in the main prefer to submit even the most technical details to the judgment of one who had a wide experience of human nature rather than to the possessor of that little stock of special knowledge which is so proverbially dangerous.

In a limited sense these latter remarks can be applied to *juries*, but in a limited sense only, and I can conceive that if the question of trial by jury were attacked, the decision of a question of soundness would present one of its weakest points. Such personal opinion is, however, possibly in error, for it is in direct disagreement with that of a learned judge, who has stated in the case of Lewis *v.* Peake (7 Faunt. 153, 11 Ad. and E. 926), "The soundness of a horse is a question peculiarly fit for the consideration of a jury, and the court will not set aside a verdict on account of the preponderance of evidence being the other way." The latter half of this sentence constitutes to my mind the danger. It is acknowledged that every Englishman knows, in his own estimation, something of horses, and I think it may be generally conceded that the less knowledge he actually possesses the more intolerant is he of the opinions of those who in this respect occupy a higher level; and consequently I should prefer to submit scientific evidence to the judgment of one well-educated person with a broad experience of men and matters, rather than to a number who, however unbiassed and honest, are not so well qualified mentally.

Counsel in all cases, particularly questions regarding soundness, have an immense advantage in the examination of hostile witnesses, and as this is the position in which we must be inevitably placed it is well for a moment to consider it. Practically the witness is bound to answer all their questions, relevant or otherwise, unless such answer incriminates himself; but their great advantage over the veterinary witness, who probably has only one point to assert which bears on the case, is, I think, their power of avoiding that particular

fact or opinion directly, and leading through those devious and circuitous byways which they know so well how to tread. To assist them in undoing they have at command the skilled opinion of their own professional witnesses, veterinary works on the subject, and certain publications directly relating to the law of horses.

To these *works* I call your attention for a moment; they are Oliphant's 'Law of Horses' (last edition, 1882), and Lascelles' 'Horse Warranty' (2nd edition, 1880). There is also another anonymous legal work on the subject published in 1825, but this I think we need not consider. The two first-mentioned works are the productions of lawyers pure and simple, their veterinary information being either culled from the writings of others or the outcome of the observations of the amateur. On the other hand, we have books dealing with the subject written by veterinary surgeons who have extracted their law from those already mentioned. Of the two former authors, Oliphant takes as his veterinary authority Youatt's Book on the Horse, published by the Society for the Dissemination of Useful Knowledge (1865), whilst Lascelles constitutes himself his own authority on the ground that he has owned horses, or if he is indebted to any veterinary author I find no acknowledgment of the fact; and, as we might expect to find, in the one case the information is out of date and in the other unreliable: the former gravely informs us that a wolf's tooth is unsoundness, whilst the latter contends that bone spavin is not necessarily so. The point I wish to make with regard to this, and in so doing I am quoting a legal opinion, is that in a lawyer's eyes these works have a greater value and carry more weight than do those written by veterinary surgeons on the same subject; and I would suggest that it would be a good work done for some one who may have both professional qualifications—and we have more than one such among us—to undertake the publication of a new treatise on legal matters relating to animals generally, and as regards our profession in particular.

Having taken a glance at others who are nearly connected with law questions relating to soundness, we now come to the, from our point of view, most important detail, namely, the consideration of ourselves; and in doing so I do not intend to spare the rod, but commence by saying that on questions of soundness our opinion is not always held in that respect which should be its due, and that for this we have in great measure ourselves to thank. I am credibly informed that it is possible to obtain a veterinary surgeon's certificate of soundness for what Mr. Micawber has termed "the ridiculously small sum of half-a-crown," and a system of competition by which we cheapen ourselves and our opinions is one which can only bring the inevitable result of being regarded as of little worth. I would not have it thought that I do not recognise the fact that many of our profession labour under the dire curse of poverty, and so are more readily inclined to sell their knowledge and advice cheaply; but of this I feel convinced, that what can be cheaply obtained is lightly estimated, and that estimation is generally correct, and in no way is it more likely to be proved to be the case than under the penetrating scrutiny of the law. In examinations as to soundness we incur heavy legal responsibilities, and unless we demand a suitable recompense for undertaking them, it will be generally supposed either that they do not exist, or that we may disregard them with impunity. That such is not the case may be proved by comparatively recent events, members of our profession have been arraigned

on charges of negligence, have had their opinions traversed and held up to ridicule in the public press, and only have they escaped paying a heavy penalty by proving that the allegations were groundless, or by undertaking costly proceedings against their traducers.

What then is required of us legally in the examination of an animal as to soundness? That we should exercise a due amount of care and a reasonable amount of skill, and this is the safeguard of our employer to ensure his being the recipient of both. It has been held, and rightly, that the amount of time occupied in the examination is no argument for or against the amount of care or skill; and indeed, allowing for differences of method, the man who occupies an unduly lengthy period in his examination is probably hovering between his own ignorance and the desire to prevent its detection.

I have always regarded the position of the veterinary surgeon in examinations as the actual embodiment of "*caveat emptor;*" there may of course be exceptions, but as a rule I think he should be solely on the side of and in the employment of the buyer, and if the latter fully understands that this is the case, his professional opinion will be accredited with more value and weight; and the practice of examining animals wholesale for those who are about to dispose of them is one which I feel convinced is not calculated to add to the estimation in which our opinion is generally held.

On the other hand, we must be careful not to exercise our power to the undue detriment of the seller, and to confine our opinions to our own province. Now here it is possible to raise a quibble; I do not intend to quibble, but to point out the difficulty which may arise. I find it has been stated that in examinations the veterinary surgeon should be guided, and the owner has a right to expect it, by the principles which are recognised by legal tribunals, for it would be intolerable that any private individual should attempt to constitute himself a legislator on a subject of such wide-spread importance as this. If we accept such a limitation of our duties we may refrain from mentioning certain blemishes or defects which, whilst not held to be unsoundness *per se*, would yet leave our client with possibly excellent ground for complaint if such were not noticed by us and pointed out to him; and if we may suppose an extreme case we may be in a position to call an animal with capped hocks, broken knees, the marks of brushing and speedy cutting, and a crib biter, sound, without further remark, though we should undoubtedly lay ourselves open to somewhat hostile criticism.

Again, the word "sound" on a veterinary surgeon's certificate does not cover the definition of that term in a court of law, though possibly some who are not too well informed on the subject believe and more or less expect it to do so; but it is a fact that horses are constantly bought or refused solely on veterinary opinion, and it therefore behoves us to be careful of its use, for nothing can be more detrimental to our reputation than to have an animal held to be unsound in a court of law which we have previously pronounced to be the reverse.

This brings us to the consideration of the certificate. As at present constituted the usual form of certificate used by the majority of practitioners consists of three paragraphs: the first naming the client and describing accurately the animal examined; the second containing mention of the defects which are noted, and the third setting forth the opinion arrived at. In the statement of this last, three terms are commonly employed,—sound, practically sound,

unsound. Such a document has the merit of directness and conciseness, but I think it unduly limits our sphere of usefulness, and although it has a distinctly legal appearance it gains nothing in weight from that when submitted to criticism. In fact, I am of opinion that the present form of certificate might, with some advantage to ourselves and our clients and without detracting from the legal value of our opinion, be replaced by the "letter of advice."

Since writing these remarks my attention has been drawn to an article in the *Live Stock Journal* for December 26th, 1894, by Falcon, entitled "The Veterinary Surgeon and his Client," in which the following passages occur:—"To the inexperienced person a certificate which begins by reciting a number of minor evils cannot perhaps be a very hopeful document, and if the horse is to cost any great amount of money the buyer may feel inclined to enter into no further negotiations for his purchase. In these circumstances the question has often been asked, how far it is within the legitimate province of a veterinary surgeon to advise his client as to whether he shall accept or refuse a horse. There is a great deal to be said on both sides. The intending buyer, unless tolerably experienced, may not be able to form any opinion as to the real meaning of the certificate; but the veterinary surgeon, on the other hand, is able approximately to appraise the importance of each blemish or structural alteration,—for it must be borne in mind that, according to the legal meaning of unsoundness, any structural alteration or any ailment which renders the horse unfit for use at the moment is, strictly speaking, an unsoundness. And the question might arise as to how far the professional advisers might make a mistake by describing as practically sound a horse which would be unsound in the eye of the law." Falcon also states the opposite of the question, and evidently appreciates the delicate position in which the veterinary surgeon stands, and I think under such circumstances we should be well advised to discontinue the somewhat legal-looking form of document so commonly employed, and substitute for it a letter of veterinary advice.

There is a story related of a veterinary surgeon, who after examining an animal wrote to his client as follows:—"This horse is most unsound, but I strongly advise you to buy him." Such wording is not permissible in the usual form of certificate if we are to confine ourselves to legal points and a routine form of expressing our opinion, but it will apply to many cases which must have come under the observation of all. No doubt the document commencing "I certify" is dear to the heart of the seller who can use it as an argument to effect a sale and absolve himself of all responsibility by its means, but I doubt if it is always to either his or our best interests to word our opinion in such a stereotyped manner, and certainly from a legal aspect it gains no additional value.

The definition of soundness now accepted in courts of law is that laid down by Baron Parke in "Kiddel *v.* Barnard," to which may be added the dictum of the same learned judge in "Coates *v.* Stephens." It resolves itself essentially into a question of usefulness, and provides that any disease or alteration of structure from disease or accident which does interfere or may in its ordinary course interfere with the animal's usefulness is unsoundness; and further that slightness of disease or facility of cure is no qualification as regards such unsoundness. Such a definition allows too little opportunity for the

exercise of our knowledge, and so the veterinary surgeon who allows himself to be confined by legal dicta may pass an animal sound which he is absolutely convinced will shortly become the reverse.

It is then, I think, necessary, if we wish to exercise to the full our powers of observation for the benefit of our clients, that we should make it fully understood that our advice is not in any way a legal guarantee, and may even be opposed to the law, and this may be advantageously effected in the manner I have pointed out.

No doubt it would be possible and permissible, under the heading of this paper, to have considered in detail diseases and defects which constitute, or may constitute, unsoundness, but I have preferred to take what I think is a broader basis, and chiefly to review our own position in the matter, and, remembering that length does not always increase the value of a paper, to put my thoughts as concisely as possible. (Applause.)

Discussion.

Professor Penberthy opened the discussion, and was followed by Mr. Hunting.

Mr. Hunting.—This is too big a subject to go on with now. I therefore propose that the further discussion be deferred until our next meeting.

Professor Macqueen.—I beg to second that.

The *Chairman.*—I dare say you all know that there is a kind of unwritten law that the mover of the adjournment resumes the discussion. I ask Mr. Hunting whether he will undertake this.

Mr. Hunting.—I did not think of that—(laughter)—but I will resume the discussion as desired at our next meeting.

The resolution was agreed to.

The British Institute of Preventive Medicine.

Mr. Hunting.—I desire to give notice that at our next meeting I will reopen the subject of our making a grant to the British Institute of Preventive Medicine. I must apologise for this somewhat unusual proceeding, but my excuse is that I have perhaps more information than the Council of this Society had before them when at their last meeting seven gentlemen reversed the decision of some fourteen at the meeting of the Society itself.

Thanks to the Chairman, moved by *Professor Penberthy* and seconded by *Mr. H. Edgar*, concluded the proceedings.

NORTH OF SCOTLAND VETERINARY MEDICAL SOCIETY.

The members of the North of Scotland Veterinary Medical Society held their first meeting in Airth's Hall, Aberdeen, on Saturday, January 26th, 1895. The President of the Society (James Thomson, Esq.) occupied the chair, and there were also present Messrs. G. Howie, Alford; A. Wood, Turriff; G. Barron, Echt; J. Murray, Banchory; C. McGregor, Kintore; W. Anderson, Keith; A. Sievwright, Tarland; J. Cassie, Fingask; McLanchlan Young, Dundee; W. Mackie, Aberlour; J. Murray, Cullen; W. McPherson, Huntly; and W. Skinner, Oldmeldrum.

Apologies for non-attendance were received from Messrs. Duncan, Methlick, and Mellis, Inverurie.

The minutes of certain meetings held in connection with the formation of the Society having been read and confirmed, the President intimated a donation of £4 19*s.* 6*d.* to the funds of the Society by the surviving members of the late North of Scotland Veterinary Medical Association.

Inaugural Address. By James Thomson, M.R.C.V.S.

Gentlemen,—I sincerely reciprocate your kindly sentiments in having elected me to the honorable position of President of the North of Scotland Veterinary Medical Society, and while it will be my earnest desire to discharge the duties incumbent upon me impartially, I bespeak your hearty co-operation and support.

I venture to think that it would have been more in accord with your desires had I selected some specific subject relating to the science of medicine or surgery for to-day's discussion; and I have to apologise to you at the opening of the first session for having deferred to my own feelings and convenience in the matter.

I think it not unfitting on the present occasion to refer to the loss sustained by the profession in the recent removal by death of my revered teacher Professor John Gamgee and my personal friend Professor Walley. I will not here speak of their professional abilities or the thoroughness of their teaching, and would only remark that the influence that contributed to the success and subsequent eminence of many who were privileged to study at the respective schools is, to my mind, the highest testimony of their intellectual ability and of their devotion to the advancement of their profession.

I will not occupy your time in portraying the many advantages, both socially and professionally, to be derived from the formation of societies for edification, as such will very much depend on the individual members exercising courtesy and kindly criticism on whatever may seem personally offensive, and who will also contribute to an unreserved interchange of opinion on the subject-matter of discussion, and thereby render the meetings agreeable and edifying.

From having taken an interested part many years ago in the formation of a similar society to that launched here to-day, and having attended the meetings of others in the south and west of Scotland, I would ask you seriously to consider at the inception of your Society whether the usual procedure that obtains at most of such gatherings, viz. for a member to write a paper on some special subject, perhaps interesting to but few, is the best means whereby our wants may be met, our interests in the Society maintained, or the science and practice of the profession advanced. Personally I am very doubtful. In the first place the meetings are held at too great intervals, and the ground covered in discussing one subject affords but little opportunity for an interchange of opinion on matters equally important; and in the next place the every-day duties of the busy practitioner afford him little time for the cultivation of the literary side of his nature, while the collaboration of facts, the composition and arrangement of the matter, from his inexperience of the work, demand so great an effort as to render the task undesirable and the obligation reluctantly undertaken.

It therefore appears to me that, in addition to bringing before the Society interesting pathological specimens, its success would be more fully assured and its interests maintained were one or more subjects

briefly introduced, and an expression of the opinion of the members obtained. I can assure you that the after-dinner speeches and the subsequent unrestrained exchange of opinion conversationally engaged in at such meetings has added to my information and pleasure far beyond the enforced discussion of a particular subject of perhaps little personal interest, which in its general application and interest lies more within the domain of the light and leading of the profession.

From one, such as your humble servant, who has passed the meridian of life, the greater part of which has been spent in the more practical work of the profession, little of much interest or novelty need be expected, and I do not therefore pretend to have followed so closely as was desirable, far less to have intellectually apprehended so as to be able to discuss, the remarkable discoveries as confirmed by recent experimental research, regarding the causation and treatment of disease; and it is therefore not unnatural for me to retrospectively reflect, and with pleasurable feelings survey, with what enormous strides the science of medicine has been advanced within the past quarter of a century. The greatest outstanding feature in the advance of medical science in the present day is the discovery of the "germ origin" of disease; and when I look back on my student days in the early sixties, I cannot fail to see that the modern practice in the amelioration of the sufferings of the animal creation must obviously result in being more successful and humane.

I need scarcely remind you how much we are indebted to Pasteur and many others eminent in bacteriological science for our exact conceptions of the causation of many of the contagious diseases, and at present it is impossible to approximately predict how far-reaching their results may be in alleviating the physical sufferings of humanity. It is now an established fact that many diseases in man and animals are due to an infection of the body by special bacteria, and that by experimentation in cultivating and attenuating the virus, and introducing it into the blood of an animal, there is a power conferred to resist infection, even to render the animal immune. Very great public interest is at the present time being taken in the treatment of diphtheria in the human subject by antitoxic serum. I assume that most of you here, and certainly the more recent graduates, are quite familiar with the recent experimental researches in the science of bacteriology, and the highly important part played by micro-organisms or their toxines both as pathogenic and curative factors in disease; but to those of us who have been taught on the older lines the subject is both novel and inviting, and establishes the interdependent relations of the higher branches of medical science with that of our own, and enlarges our conception of the cause of disease.

As bearing directly on this subject, I must not omit to mention the brilliant results that have been achieved in the domain of surgery through the discovery of living particles in the air, as producing putrefaction of the discharges of wounds; and that, mainly by the indefatigable labours of Sir Joseph Lister, the whole system of wound treatment is now based on a rational and scientific basis. In my early days much was left to the individual judgment in selecting from a number of reputed curative agents one applicable to a given case, and the formulæ for such were eagerly sought after and scrupulously preserved. At that time we were wholly ignorant of the harmful influences at work in retarding the healing process.

Our knowledge, by means of the microscope, of the universal distribution of living germs as producers of disease has robbed the practice of surgery of half its terrors, and the surgeon of the present day is concerned with the removal of causes that adversely affect the healing process instead of with the application of the reputed remedies of the age before asepsis was known or practised. Time would fail me, even if I were able to convey to you even approximately the principles and methods pursued by eminent scientists in overcoming many apparently insuperable obstacles, but through their intense love of science and by their unceasing perseverance the mysteries of disease have been greatly unravelled.

Though their efforts were generally directed in the cause of humanity, our profession has been advanced in no subordinate manner: for instance, the discovery of tuberculin as a reactionary agent in the detection of animals suffering from that disease, mallein in the detection of glanders, the toxines of anthrax and tetanus as conferring on animals, if not complete immunity, a greater insusceptibility to those diseases. While greatly acknowledging the valuable discoveries of modern science, in view of the limited extent to which the practice of the principles above referred to obtains as yet in this country, and as one whose ætiology and pathology is somewhat antiquated, I apologetically remark that I do not accept the finality of the conclusions arrived at without somewhat of reserve, for I believe in the almost obsolete terms of predisposition and heredity, and particularly the latter, as important factors in the distribution of tuberculosis.

While great minds are occupied in endeavouring to solve the higher problems of life, there is a wide field for the exercise of our less highly trained intellects in the study of the causation of the diseases to which animals are liable; and to my mind the science of hygiene has largely disclosed to us many conditions that predispose animals to become affected with disease. Chief amongst these are bad food, foul air, and water; and so far as attention has been directed to the improvement of their environments, diseases have become more infrequent. I remember that many years ago in certain districts of this county such diseases as red-water in cows after calving, rickets, or, as it was commonly called, "stiffness" in cattle in the early spring months, and quarter-ill, were very common; but I believe that, owing chiefly to the improved conditions of agriculture in the production of a better quality of food, and with improved dietary and housing, these diseases are now much less common, and in districts that are exclusively dairying they are comparatively rare.

Our information as to the cause and prevention of abortion in cows and of milk fever is very hypothetical, and the diversity of opinions entertained in respect of them are in proportion to the many remedies applied and the methods of treatment practised. Perhaps too, in a lesser degree, our ætiology as to many diseases of horses is less exact than is desirable. I have sometimes thought in our admiration for novelty, and in blindly following fashion, we often do not reflect as to the why and wherefore of existing conditions, neglecting many opportunities of combating error and upholding the banner of "science with practice."

Gentlemen, I thank you for the present attention with which you have listened to me, and I apologise for the poverty of the matter and the incompleteness of detail, which must have been obvious to

you. The burden of these discursive remarks is the "cry for more light," which I hopefully anticipate will be answered in the recent establishment of a definite Veterinary Laboratory by the British Institute of Preventive Medicine.

At the close of the address certain points therein contained were discussed, notably the heredity *versus* non-heredity of tuberculosis, in which discussion all present took part.

Morbid Specimens.

A calculus from the urethra of a horse was shown by the President, it having been removed therefrom by Mr. Hay, V.S., Ellon; also a specimen of most advanced hypertrophy of the horse's hoof.

Mr. McGregor exhibited a most extraordinary fœtal monstrosity taken from the cow.

Mr. Skinner showed a fractured tibial bone resulting from a kick, the injured animal continuing to all appearance perfectly sound and at work for a period of three weeks before displacement of the fragments took place.

The following gentlemen were admitted members of the Society:—Messrs. R. Dawson, Rayne; A. S. Bell, Fraserburgh; J. Cassie, Fingask; McLanchlan Young, Dundee; W. McPherson, Huntly; J. Murray, Cullen; J. McByrde, Stricken; A. Johnson, Auchterless; T. Simpson, Stewartfield; and J. Cowie, Cornhill.

The following gentlemen undertook to read short communications at the next meeting of the Society with a view of affording ample scope for discussion, viz. Messrs. Howie, Young, McGregor, and Sievwright.

After the usual votes of thanks the meeting terminated.

Wm. Skinner, *Hon. Sec.*

THE ONTARIO VETERINARY ASSOCIATION.

The Annual Meeting of this Association was held in the Veterinary College, Toronto, Canada, on Friday, December 21st, 1894.

The *President*, Mr. N. Burns, V.S., opened the meeting with a few well-chosen remarks, and called for the reading of the reports.

The *Secretary's*, *Registrars'*, and *Auditors'* reports were then received and adopted.

Considerable discussion then ensued on the action of certain parties in issuing so-called Veterinary Dental Diplomas. The issuing of these was very strongly condemned at the last meeting, tending as it does to bring legitimate veterinary science into disrepute, reputable members of the veterinary profession considering this so-called veterinary dentistry as a complete humbug. Mr. John Wende, V.S., also a member of the New York State Veterinary Association, remarked that that association also very strongly condemned the issuing of these veterinary dental diplomas.

Major Lloyd, *Mr. Gibb*, *Mr. C. Elliott*, *Mr. O'Neil*, and others took part in this discussion, and it was ultimately resolved—"That the same committee that were appointed last year should be continued, and that their efforts should be directed to suppress this humbug."

Mr. W. J. Wilson, *V.S.*, of London, read an excellent paper on the dangers of using the meat and also the milk of diseased animals as human food. He called attention to the toxic properties produced by the germs of tuberculosis, the *Bacillus tuberculosis* being

especially injurious to consumptive patients, and that these products were still existing in the meat and milk, although the vitality of the bacillus itself may have been destroyed by cooking or otherwise. He recommended the establishment of public abattoirs, and the inspection of meat by qualified men. He also recommended that dairies should be placed under suitable inspection, and that the hygienic condition of milch cows should be looked to, cleanliness and sufficient air space being essential.

In the discussion that followed, in which Major Lloyd, Messrs. Shaw, Cowan, and others took part, it was remarked that the "tuberculin test" was a reliable diagnostic agent, but judgment must be used in applying it. That it is well to take the body temperature of other animals in the herd not injected, as variations in the temperature may be produced by accidental causes.

Mr. Cowan, Veterinary Inspector, said that it was well not to make unnecessary alarm in connection with tuberculosis; that the disease existed only to a slight extent in Canada amongst cattle—less than in most other countries; and that the disease was on the decrease here. He also said that the various Boards of Health have great power in looking into the milk supply. That there is all the law that is required in investigating the milk and meat supply and in condemning tubercular cases.

The thanks of the meeting were voted to Mr. W. J. Wilson for his interesting paper.

Mr. A. Crowforth, V.S., of Lockport, N.Y., U.S., read an interesting and exhaustive paper on "Tuberculosis in relation to animal industry and public health, its prevalence and importance." He said that it prevailed so extensively throughout the civilised world that no disease is so deserving of close study, or of the enforcement of effective measures for its suppression. Cholera, yellow fever, and smallpox, which occasionally appear, creating universal terror and dismay, claim but few victims in comparison with this ever-present and universally devastating malady. These other plagues are quick, severe, and fatal, and therefore can be promptly recognised and even stamped out; whereas tuberculosis is slow and uncertain in its progress, and often escapes recognition for a long time. It may be classed with "*the pestilence that walketh in darkness,*" while the other disease named may be likened to the "*destructions that waste at noonday.*"

He gave statistics showing the deaths in various parts of the world in the human race, and mentioned its prevalence as the same disease in the domestic animals, produced by the same micro-organism (the *Bacillus tuberculosus*), and the difficulty of obtaining reliable statistics. In the Middle Ages tuberculosis in animals was recognised as contagious, and laws were made against the use of affected carcases as human food, which remain in force in Spain and Italy to the present day. In the early part of the present century its contagious character was doubted by medical practitioners; but at the present time, in the light of numerous investigations and experiments, all candid scientific observers accept the doctrine of its contagious character. He described the germ, its history and mode of propagation, and also the accessory causes which tend to produce the disease. But none of these causes can produce the disease in the absence of the bacillus. He described the disease in the various organs and tissues of the body, and mentioned the difficulties experienced in diagnosis. He spoke strongly in favour of

"tuberculin" as a diagnostic agent, and said those who had used it most valued it the most highly. In conclusion he compared the geographical distribution of cattle and the prevalence of tuberculosis in the human race, and showed the ultimate relations of cattle to man as a potent agent in the extension and maintenance of consumption in the human family.

A discussion followed, in which Messrs. O'Neil, Wilson, and others took part, and a vote of thanks was tendered to Mr. Crowforth for his interesting and exhaustive paper.

Professor Smith exhibited from the museum of the Veterinary College specimens of "gangrenous ergotism" of the legs of cattle, from cases he had investigated last spring.

The sum of $25 was appropriated for a medal to be competed for by students of the Ontario Veterinary College at the approaching spring examinations.

The following are the officers for the ensuing year:—President, Mr. G. L. Robson; first Vice-President, Mr. H. Hopkins; second Vice-President, Mr. D. Hamilton; Secretary, Mr. C. H. Sweetapple; Treasurer, Mr. W. Cowan; Auditors, Messrs. J. D. O'Neil and C. Elliott; Directors, Messrs. J. Wende, W. Burns, J. F. Quin, W. Gibb, W. J. Wilson, T. Holder, A. Crowforth, and W. Steel.

Army Veterinary Department.

Extract from 'London Gazette' of February 5th, 1895.

PROMOTIONS.—ARMY VETERINARY DEPARTMENT.—The undermentioned Veterinary Lieutenants to be Veterinary Captains. Dated 4th February, 1895.

Edward Taylor.

Alfred Joseph Haslam, M.D., F.R.C.V.S.

ARRIVAL.—Veterinary Lieutenant A. S. Trydell has been granted six months' sick leave of absence from India.

Contagious Diseases (of Animals) in Great Britain.

As our readers generally are interested in the amount of contagious disease existing among animals throughout the country, and only few of them have an opportunity of seeing either the *London Gazette* or the Report of the Veterinary Department of the Board of Agriculture, the following extracts collected from the weekly returns may be interesting.

PLEURO-PNEUMONIA.—This disease appears now to be practically exterminated. During the past year only fifteen cases were discovered in Great Britain, and these were confined to two farms, one in Kent and the other in Middlesex, in May and July. In connection with these outbreaks 391 healthy cattle were slaughtered which had been in association with the diseased. In addition to the above 41 cattle suspected of pleuro-pneumonia were slaughtered in the course of the year, but on *post-mortem* were found not so affected.

FOOT AND MOUTH DISEASE.—Three separate outbreaks of this

affection occurred towards the end of 1894. The first of these was in Essex in the beginning of November; among cattle the second in Cambridgeshire; and the third in Kent, the two latter towards the end of November among sheep. In the Essex and Kent outbreaks the slaughter of the affected animals stopped the spread of the disease. In the Cambridgeshire case the strict isolation of the infected flock prevented any extension of the disease.

Swine Fever.—Since the beginning of November, 1893, the Board of Agriculture has been trying to stamp out this disease, but from the published returns it would appear up to the present without any degree of success.

In the past year swine fever existed in seventy-three counties in Great Britain as compared with sixty-seven in 1893. The number of pigs which died of swine fever during the year was 7,231, while 56,296 were slaughtered as diseased or having been in contact with the diseased. In addition 1,320 suspected pigs were slaughtered, but found on *post-mortem* examination to be free from swine fever.

Anthrax.—This disease existed last year in sixty-four counties in Great Britain as compared with sixty-eight in 1893; there were 494 fresh outbreaks last year, and 998 animals attacked, as compared with 563 outbreaks and 1,300 animals attacked in the preceding year.

Glanders.—There was last year some improvement as regards this disease. Returns were received from thirty-three counties as compared with forty in 1893. The outbreaks fell from 1381 in the latter year to 969, and the number of animals attacked from 2133 to 1436.

Rabies.—With regard to this disease there was, unfortunately, during the past year an alarming increase. The cases of this disease in 1893 were 94 in number, but last year they rose to 256. These figures taken by themselves give no adequate idea of the rapidity of the increase. On analysing the returns, week by week throughout the year, we find that 112 of these cases of rabies, or nearly 44 per cent., occurred in the last thirteen weeks of the year.

It may be noted that this disease had its chief centres in Cheshire, Lancashire, York, W.-R., and Lanarkshire, and these four counties supplied 218 of the cases, leaving only 38 distributed in the other thirteen counties in which rabies existed.

Turning now to the figures for the first seven weeks of the present year, as published in the *London Gazette*, we cannot congratulate the Board of Agriculture on their success.

As regards swine fever we find that 875 pigs have died from this disease as compared with 813 in the corresponding weeks of 1894. There has certainly been a decrease in the number of pigs slaughtered as diseased or in contact, but that depends upon the size of the herds in which the disease appears. The suspected pigs slaughtered and found free from the disease numbered 107 this year and 105 last.

Anthrax.—The outbreaks in the seven weeks this year have been 67 as compared with 103 last, and the animals attacked have been 108 as compared with 199.

Glanders.—The outbreaks of this disease have decreased from 164 to 126, but the number of animals attacked have increased from 219 to 243.

Rabies.—The marked increase of this disease towards the end of 1894 still continues. And we find that 109 cases have occurred in the first seven weeks of this year as compared with 21 in the first seven weeks of 1894.

THE JUBILEE MEMORIAL.

To the Editors of the 'Veterinarian.'

Dear Sirs,—I should be much obliged if you would insert in your next issue the subjoined list of the members of the Jubilee Memorial Committee, and allow me to intimate that members of the profession who may be willing to join and assist the committee in promoting the success of the Memorial are cordially invited to communicate with the chairman, Mr. R. C. Trigger, Newcastle-under-Lyme. The first list of subscribers will be published in March. Donations will be received and acknowledged by the Treasurer, Mr. F. W. Wragg, 17, Church Lane, Whitechapel, E., and by yours faithfully,

J. Macqueen.

Royal Veterinary College,
London, N.W.

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SIR FREDERICK FITZWYGRAM'S PRIZES.

Lieutenant-General Sir F. Fitzwygram offers for competition his usual veterinary prizes, 1895. There will be some, but no very material alterations in the conditions.

WORSHIPFUL FARRIERY.

The Worshipful Company of Farriers do not appear to have got much forwarder with their scheme of "worshipful farriery" since I criticised some of its salient features in February last. A friend has just called my attention to the last year's account of receipts and expenditure in connection with the "National Registration of Farriers." The account shows an expenditure for the year of £385 2*s.* 6½*d.*, against which there was received a trifle over £130, leaving the Company with a balance of £254 odd to the bad. Out of the £385, £85 was spent on the practical work of examinations (such as they are), and the balance of £300 (if we except "donations to prize funds" to the amount of £11) on working expenses, £90 going in rent, £122 in clerks, and £58 in postage, stationery, advertising, &c. The income, therefore, did not pay more than half the office expenses. The report for the same period tells a ludicrous tale of failure, muddle, and vacillation, and, in view of the appeal for further subscriptions and donations, with which the report concludes, it seems high time to inquire how much longer this nonsense is going on.—*Truth.*

Memoranda.

Exhibits at the Dog Show.

Messrs. Odam having kindly invited us to visit their stand when at the dog show, we came away with samples of their principal products, comprising fluid and powder disinfectants, sawdust disinfectant for indoor use, and their special sheep dip. The Fluid was already known to

us as an excellent disinfectant and deodorant, especially useful for washing out fœtid abscesses, destroying the offensive smell in chronic grease, and as a dressing in skin diseases. It has an advantage we especially appreciated during the late severe weather—that, namely, of not becoming thick or solidifying, as do many emulsified disinfectants. The sawdust powder is intended for indoor use, and is a very useful means of purifying and freshening the atmosphere in sick rooms, courts, or other crowded places. It gives off a sharp, aromatic odour, which whilst agreeable and refreshing is distinct from that of any material of the kind we know. The sheep dip we have not yet tried, but are informed it is largely used on Her Majesty's farms. As showing the popularity of their preparations, Messrs. Odam inform us that they have been entrusted with the disinfection of the forthcoming Shire Horse Show, the Hackney Horse Show, and the Hunters' Show.

Mr. Woods, pharmaceutical chemist, Windsor, exhibits his dog soap and iridin dog powder. The soap is well prepared, of agreeable odour, lathers freely, and is elegantly dispensed. The dog powder is said to owe its efficacy to iridin, which has been much recommended in human medicine as a cholagogue.

Messrs. Boulton and Paul, of Norwich, have a fine collection of kennel appliances, and show a very convenient combination stable and kennel, which can either be used as two loose boxes or as loose box and kennel. It is made of wood and iron in sections, is very portable, and costs, we believe, £26 10s.

The indefatigable Dr. Jaeger some years ago turned his attention to horses and dogs, and succeeded in producing the best horse rug we have seen. At the dog show a large stand is devoted to this clothing. There is no doubt the Jaeger rug is immensely superior to even the best of the old style rugs, being at once warmer, lighter, and more comfortable. It allows of free transpiration, while it guards the body from chill. The best proof of its good qualities is the large sale it now has.

Le Hunte's Fluid.

The above is a purplish liquid smelling strongly of chlorine or hypochlorous acid. It is a very effectual aërial disinfectant. Though it cannot compete with crude carbolic acid for disinfection of drains, &c., it has peculiar advantages of its own, and destroys the offen-

THE SHIRE HORSE SHOW,
HACKNEY HORSE SHOW,
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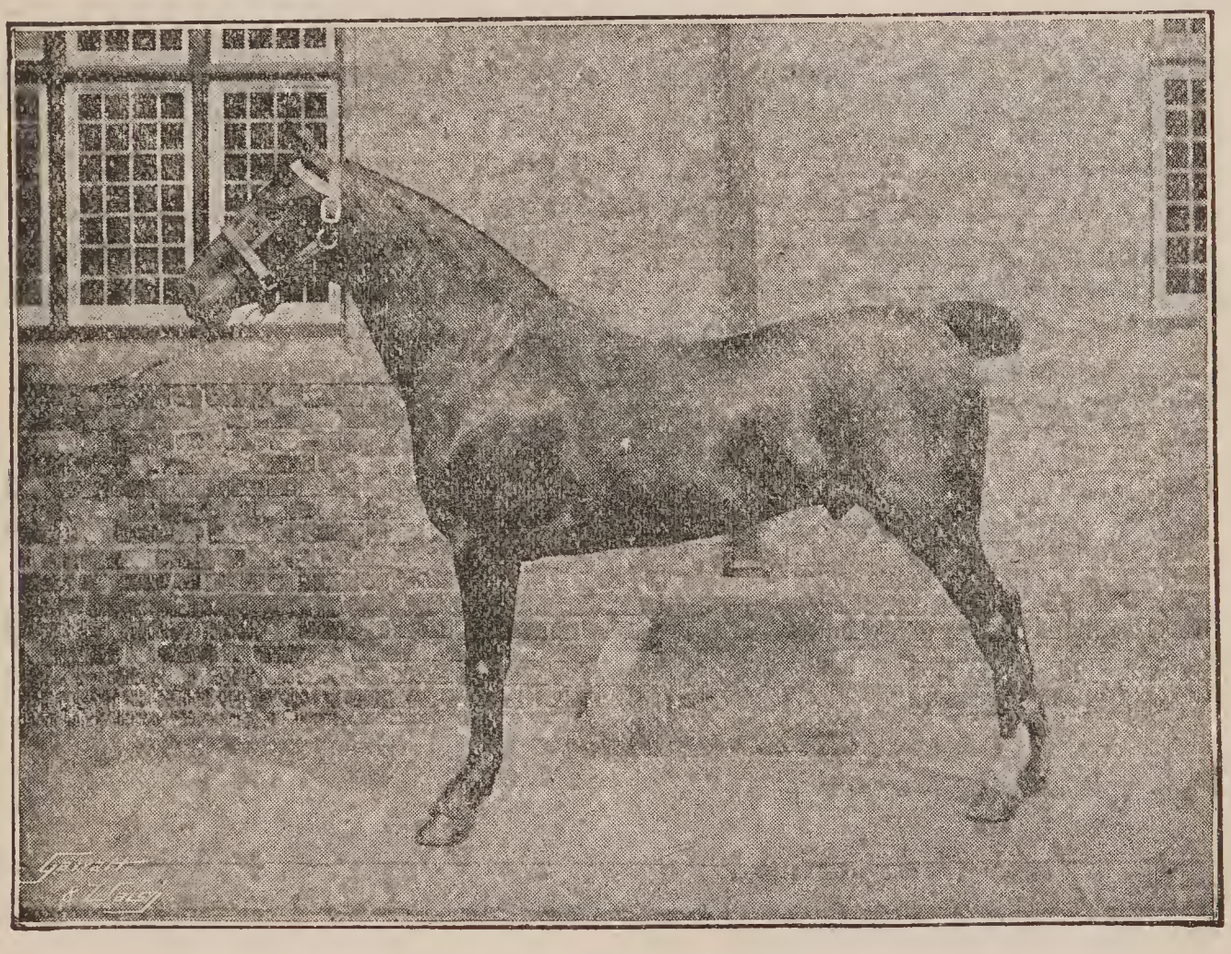

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ROYAL COLLEGE OF VETERINARY SURGEONS,

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February 23rd, 1895.

THE Examiners to conduct the Examinations of the Royal College of Veterinary Surgeons will be elected at a Meeting of Council to be held on the 3rd day of April, 1895.

Each candidate for the office of Examiner must, at least fourteen days before the date of election, intimate in writing to the Secretary (either by himself, or with his consent, by a Member of the Royal College of Veterinary Surgeons) his desire to be appointed, specifying for which Class and Subject, and stating his full name and qualifications.

Each Examiner will be elected for such period, not exceeding three years, as the Council may think fit.

The Classes and Subjects are as under:

THREE YEARS' COURSE.		FOUR YEARS' COURSE.
FIRST EXAMINATION.		EXAMINATION "A."
1. Elementary Anatomy (Osteology and Syndesmology), Equine and Comparative.	and	1. Anatomy of Domesticated Animals, Bones, Ligaments, Joints.
	Two Examiners.	
2. Chemistry.	and	2. Chemistry and Elementary Physics.
	Two Examiners.	
3. Botany.—Food Plants, Medicinal Plants, Poisonous Plants growing in the United Kingdom, and the Morphology of such.	and	3. Biology.—Elementary Zoology and Botany.
	Two Examiners.	
SECOND EXAMINATION.		EXAMINATION "B."
1. Anatomy of the Horse and other Domesticated Animals.	and	1. Anatomy of Domesticated Animals.
	Two Examiners.	
2. Physiology and Histology.	and	2. Histology and Physiology.
	Two Examiners.	
		3. Stable Management, and Manipulation of Domesticated Animals and Principles of Shoeing. *Two Examiners.*

The Examiners appointed for Anatomy, Chemistry, Botany, Histology, and Physiology will officiate under both the three-year and four-year courses.

FINAL EXAMINATION.

ORAL SECTION.

1. Morbid Anatomy and Pathology.
   Two Examiners.
2. Diseases of the Horse, including Veterinary Medicine, Surgery, Therapeutics, Materia Medica, and Toxicology.
   Two Examiners.
3. Diseases of the other Domesticated Animals, including Veterinary Medicine, Surgery, and Therapeutics.
   Two Examiners.

PRACTICAL SECTION.

1. Horses.—General Practical Examination, Writing Certificates and Prescriptions, and Dispensing Medicines.
   Two Examiners.
2. Similar Examination with regard to the other Domesticated Animals.
   Two Examiners.

It is not proposed at this Election to appoint Examiners for Classes C and D in the four-year course.

By Order of the Council. A. W. HILL, *Secretary.*

For terms and regulations apply to the Secretary.

sive smell of discharges with surprising rapidity. To all those who require an efficient, non-staining, volatile disinfectant which leaves no after smell, it will strongly recommend itself.

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New "Reliance" Thermometer.

Messrs. Arnold and Son, always on the alert to improve, have just produced a new thermometer, in which the constriction, formerly the weakest part of the whole thermometer, is made the strongest. So many thermometers

break at this point, and the cost of replacing them is so considerable, that practitioners will gladly welcome the new form. Despite the improvement the price appears not to have been raised.

CASTRATION.

Mr. C. E. Parker writes us on the subject of castration, referring to Mr. Spooner Hart's article in the February number of the *Veterinarian*. We do not know who was the writer of the essay Mr. Hart criticised, but Mr. Parker thinks it must be an essay he read before the Royal Veterinary College Medical Society. Mr. Parker believes he has been misunderstood regarding the treatment of post-operation hæmorrhage; he suggested that the cord should be crushed, and not cut off. We believe with Mr. Parker that the standing operation has been generally adopted with success.

Notices to Correspondents.

To ensure the publication of communications in the coming number they should arrive by the 15th of the month.

Letters, Articles, Reports of Cases and of Veterinary Meetings, should be addressed to THE EDITORS, 'VETERINARIAN,' ROYAL (DICK) VETERINARY COLLEGE, CLYDE STREET, EDINBURGH.

The Editors do not hold themselves responsible for the sentiments expressed by contributors, nor can they undertake to return rejected papers. They will be happy to advise and assist as far as possible, by letter, correspondents who may desire information regarding cases, instruments, or books.

Communications have been received from Dr. A. J. Haslam, Prof. E. F. De Jong, Prof. Macqueen, J. A. W. Dollar, A. M. Trotter, J. P. Slidders, F. C. Mahon, Secretary of the North of Scotland Veterinary Medical Society, Dr. Sweetapple (Ontario), W. Abson.

JOURNALS, MAGAZINES, NEWSPAPERS, ETC., RECEIVED.

La Clinica Veterinaria. L'Allevatore. Revue Vétérinaire. Annales de Médecine Vétérinaire. Recueil de Médecine Vétérinaire. Oesterreichische Monats. für Thierheilkunde. Zeitschrift für Veterinärkunde. Berliner Thierärztliche Wochenschrift. Schweizer-Archiv für Thierheilkunde. The Lancet. The British Medical Journal. Agricultural Journal (Cape Colony). *Live Stock Journal. Horticultural Review. The Field. Veterinary Record. Veterinary Journal.*

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Owing to the increase in circulation of the *Veterinarian*, and the growing demands on advertising space, it has been found necessary to slightly raise the rates for advertisements.

Orders for ADVERTISEMENTS should be forwarded on or before the 22nd of the Month, addressed to the Printers, ADLARD AND SON, 22½, Bartholomew Close, London, E.C., and must be accompanied by a Post Office Order made payable to them at the Chief Office, London.

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(PATENTED).

Vide "THE VETERINARIAN," May, 1894.

Extract from "THE VETERINARY JOURNAL," May, 1894.

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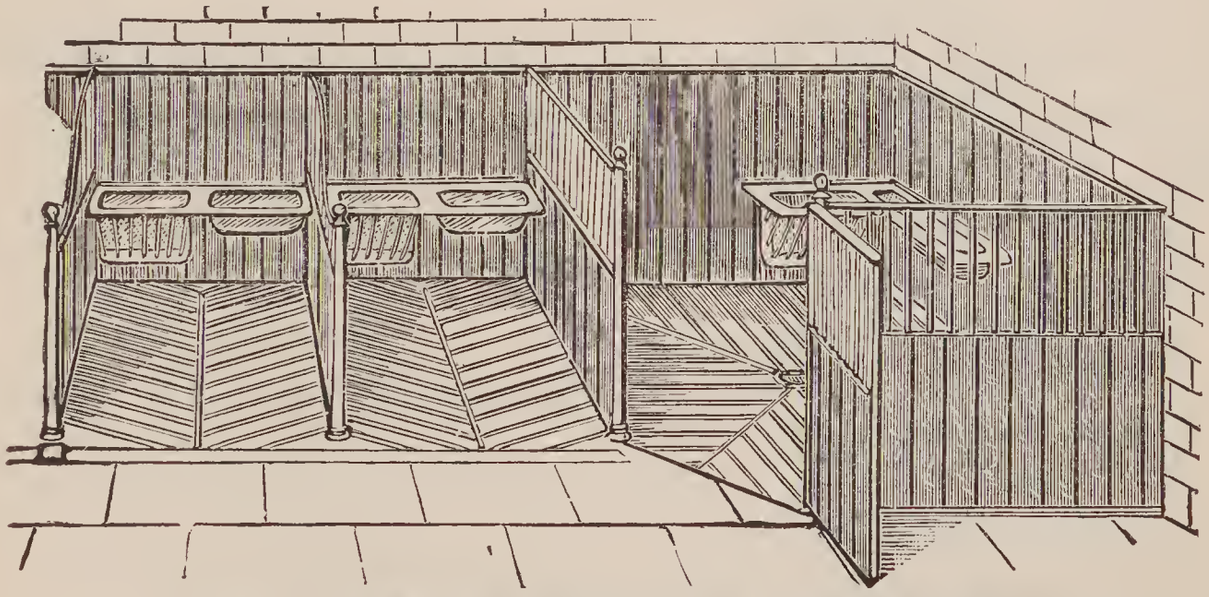

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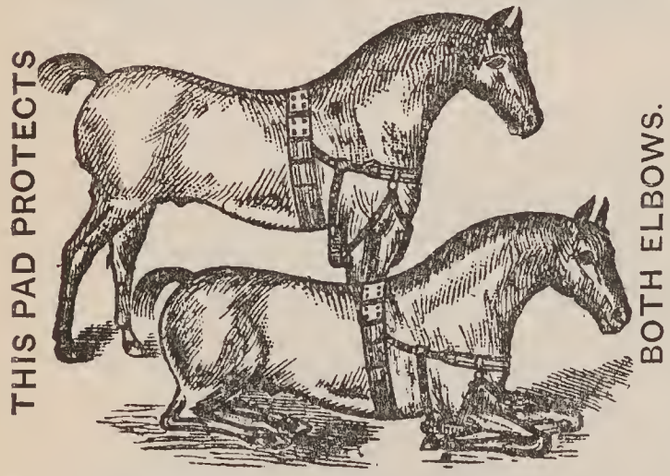

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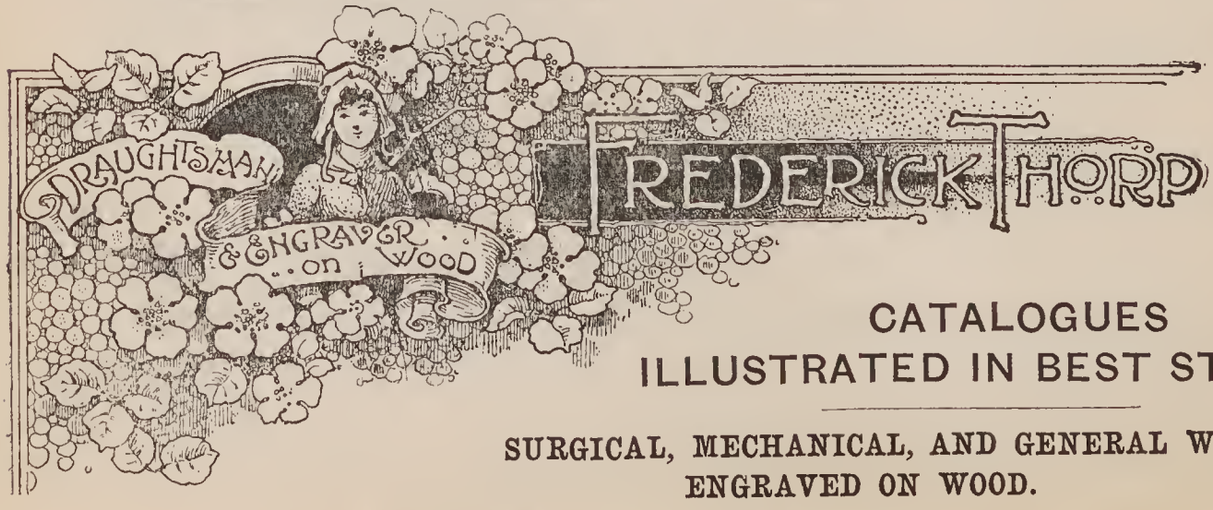

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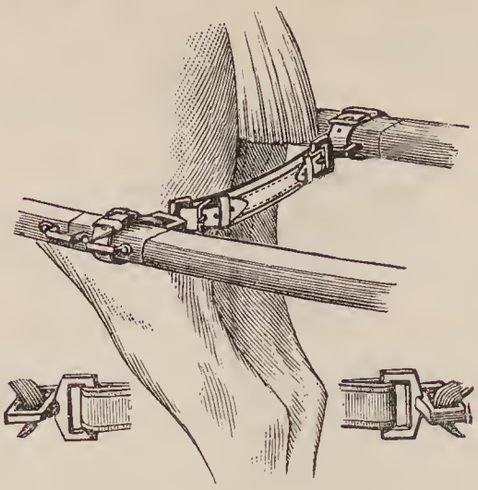

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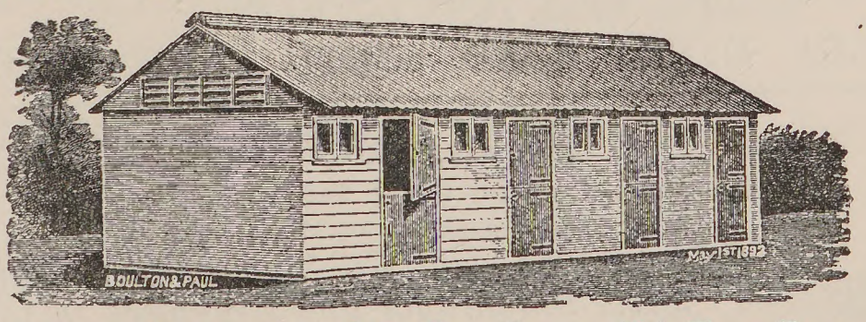

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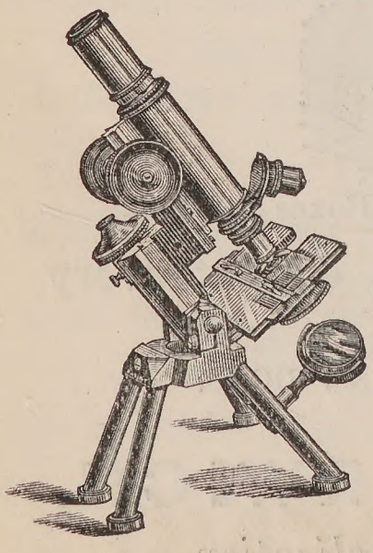

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